

1-5

Acidify

Protein Coding Region

Some environments are highly alkaline, playing this card will decrease the pH and neutralise such places. Be careful if using to make fizzy drinks.

1-3

Alarm

Protein Coding Region

Kill Switch. Think quickly! As soon as you insert this PCR in to your E. coli's genome a countdown will start. You have 15 minutes until your cell terminates.

1-2

Alkaline

Protein Coding Region

Alkaline substances have a high pH. Alkalines are just as dangerous as acids, but when used properly this card could neutralise an acidic substance.

1-6

AntiFungal

Protein Coding Region

Fungal disease affects both humans and crops. This PCR will produce a protein that targets and eliminates fungi.

1-6

Aqua

Protein Coding Region

We all know that water is essential for life, but what happens when you've run out? Worry no more, this PCR will help you produce drinking water.

1-6

Bacteriacide

Protein Coding Region

Bacteria is not always the best thing for humans. This PCR will make a protein that can be used for cleaning. This could prevent sickness.

1-5

Capsize

Protein Coding Region

Kill Switch. When in an under water lab it would be nice to know if any cells were to escape, they would die. Thankfully this card does that!

1-3

Desaltifier

Protein Coding Region

Wouldn't it be great if you could drink sea water? This card may just make that possible. Play this card to remove salt from any environment you are in.

1-5

DeToxify

Protein Coding Region

When this card is played a protein is produced that removes toxic gas. Useful if in a mine, or by a volcano.

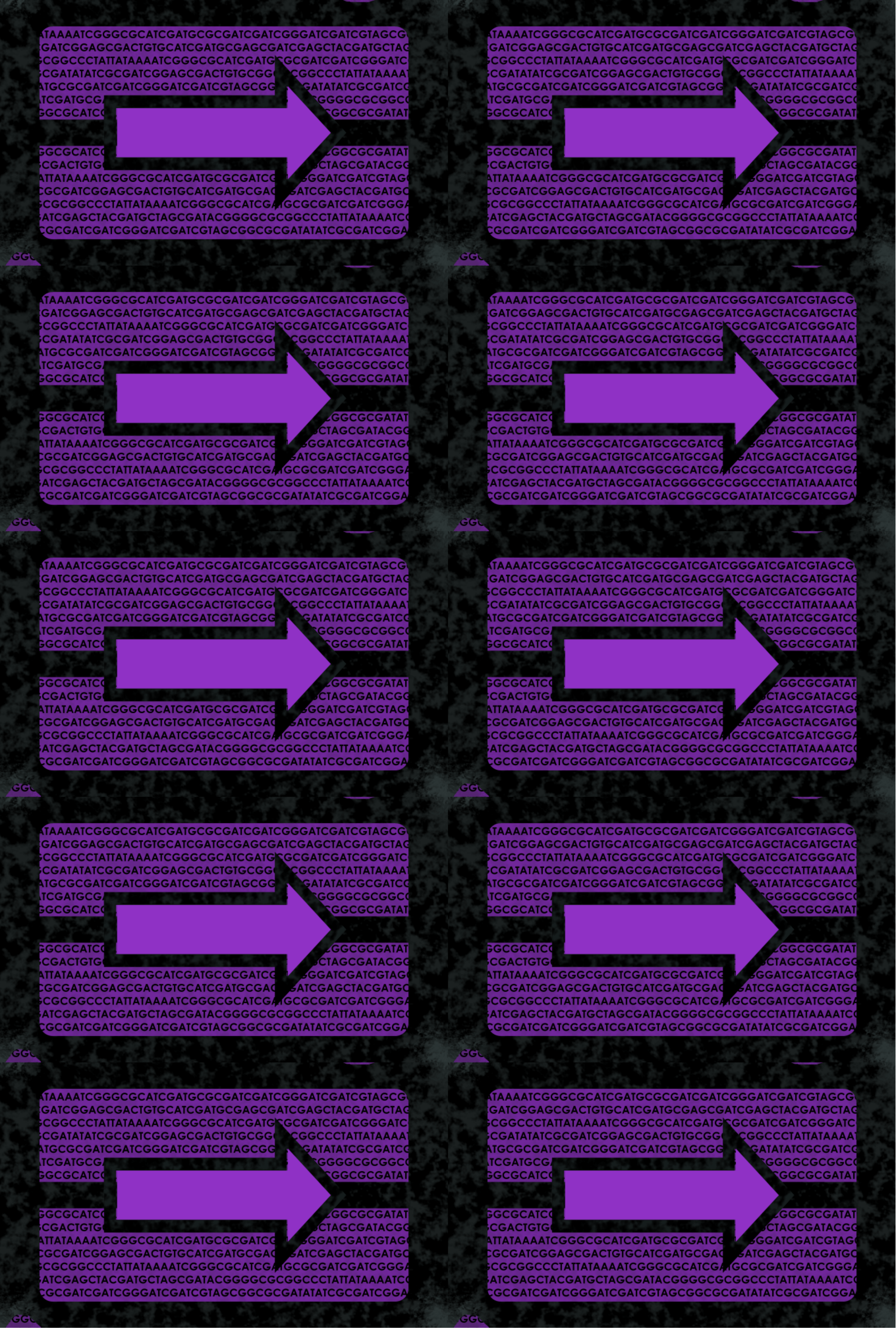
1-2

DietSoda

Protein Coding Region

Kill Switch. This card will terminate your E. coli when placed in to a substance that has a  $\text{pH} < 7$ . Useful if releasing organisms in to acidic places.







# 1-7 FlashLight

## Protein Coding Region

Kill Switch. A very simple PCR, when you shine green light your cells will die. Your cells will release red light so you know you were successful.



# 1-3 FrostBite

## Protein Coding Region

Kill Switch. If working in an arctic lab it would be a good idea to make sure your cells terminate if released. This PCR kills cells in cold environments.



# 1-3 Gassy

## Protein Coding Region

Carbon dioxide will be made when this PCR is inserted in to your E. coli. This will be useful when growing crops in a harsh environment.



# 1-5 GreenMotion

## Protein Coding Region

Fuel is vital for power generators to make electricity. With this card your E. coli can produce biofuel.



# 1-4 GrowFast

## Protein Coding Region

Even in normal conditions crops can have a hard time growing, this is where fertiliser is useful. The protein created by this PCR will fertilise any crops you grow.



# 1-4 Heator

## Protein Coding Region

Absorbing one photon and releasing another of lower energy is fluorescence. This PCR will make a protein that absorbs light and emits infrared (heat).



# 1-5 Hydrophobic

## Protein Coding Region

This makes a water resistant protein that could be used to make items such as a wet suit. But there are many other possibilities, what will you make?



# 1-5 Just Breathe

## Protein Coding Region

This protein coding region produces oxygen. This could be useful when in environments that humans can't breathe in.



# 1-3 LifeSaver

## Protein Coding Region

Whether you're on a desert island or in the sea, venomous animals will be close. This PCR could save your life by making valuable anti-venom's.



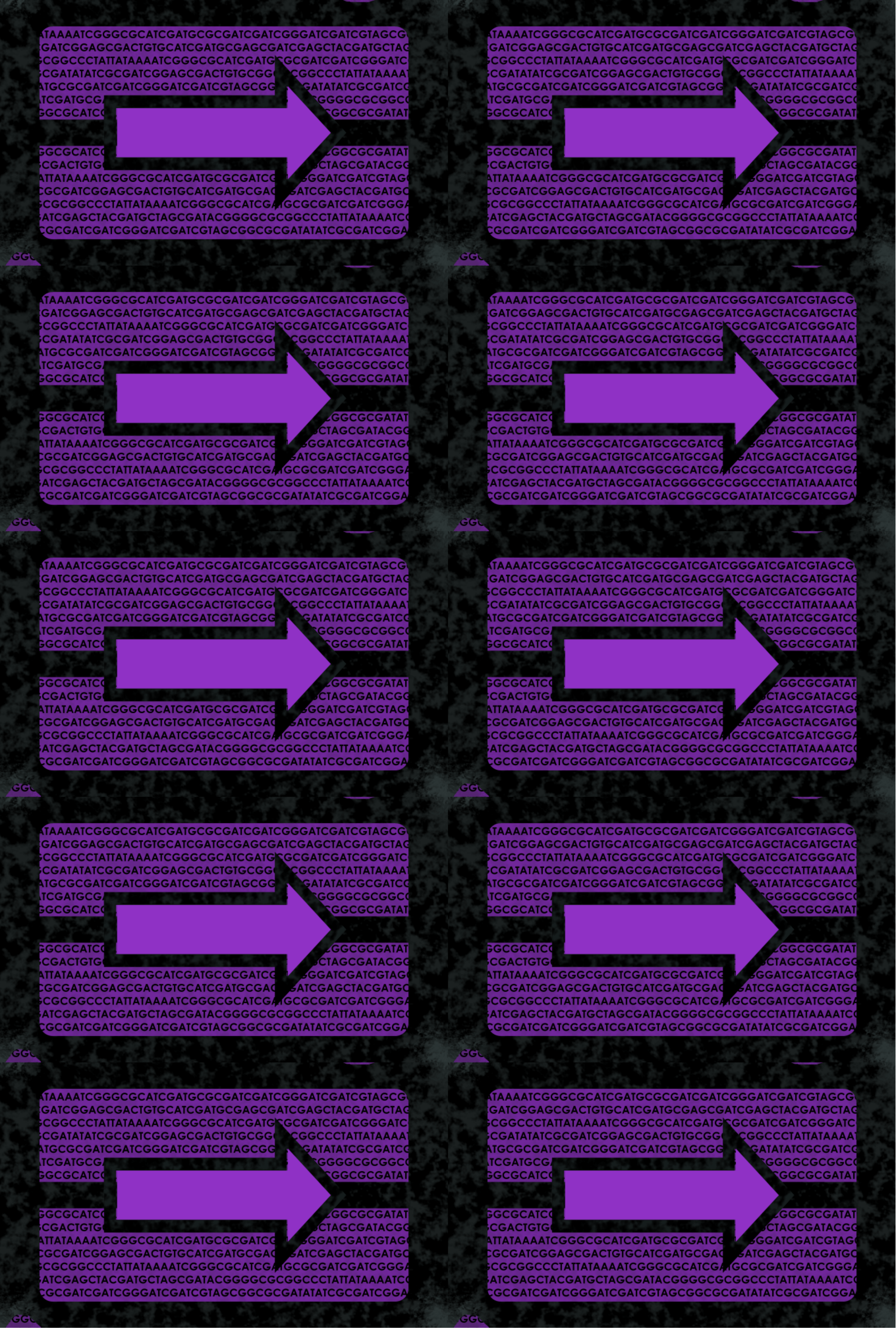
# 1-4 Luminous

## Protein Coding Region

Some environments have no natural light, this will make life difficult for you. This protein coding region will create a glowing protein.









1-5 Mushroom

Protein Coding Region

When an environment is too hostile for wildlife or plants, fungi may be the way forward. This PCR will allow your E. coli to produce an edible fungus.

1-4 Nightmare

Protein Coding Region

Kill Switch. Your E. coli will no longer last the night. When in a dark environment your cells will terminate.

1-2 NoChill

Protein Coding Region

Cells usually don't take too well to cold environments. If you play this card your colony will no longer freeze.

1-4 Not-An-Alka-Guy

Protein Coding Region

Kill Switch. If this card is played your E. coli will find alkalines unbearable. Who can blame it? Your cells will terminate when in a  $\text{pH} > 7$ .

1-4 Recyclops

Protein Coding Region

This PCR will produce a protein that safely degrades plastic. This is useful considering there is a lot of plastic contaminating fresh water sources.

1-2 Resist

Protein Coding Region

Very warm environments will typically inhibit the growth of E. coli. This PCR will allow your colony to thrive in hot environments.

1-3 Squeaky

Protein Coding Region

This PCR will produce helium. Remember helium has important uses such as cooling MRI scanners, as well as blowing up balloons.

1-5 SunBurn

Protein Coding Region

Kill Switch. Your E. coli will not survive if released in to a hot environment. Useful if you were to accidentally release your colonies.

1-3 SunCream

Protein Coding Region

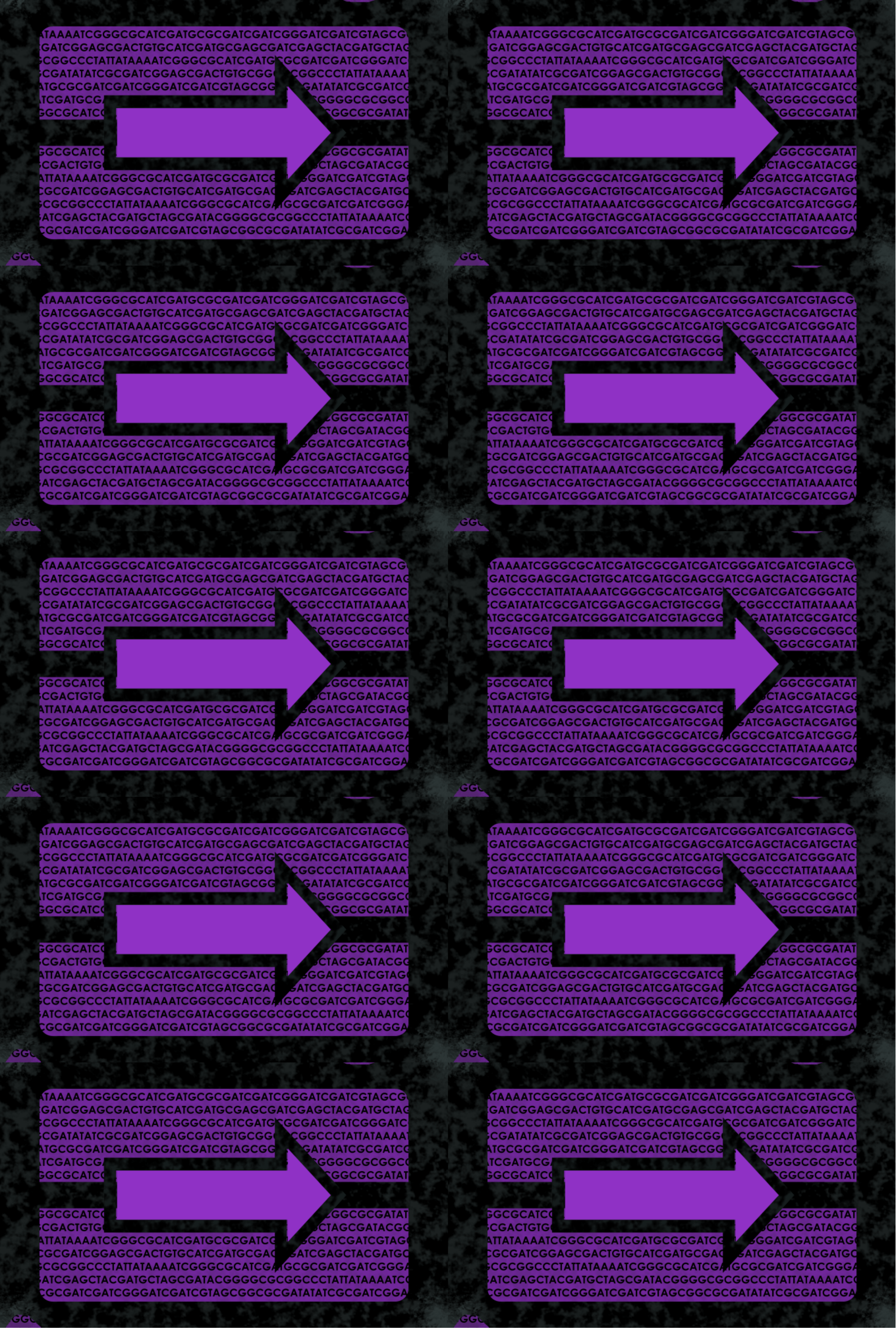
This PCR produces a protein that blocks UV radtion which could otherwise cause skin cancer. Be sure to use if stranded in the sun with no shelter.

1-4 TexStyles

Protein Coding Region

Silk can be used to make colthes, of course this is not the only use for silk, that is for you to decide. This PCR will allow your E. coli to make silk.



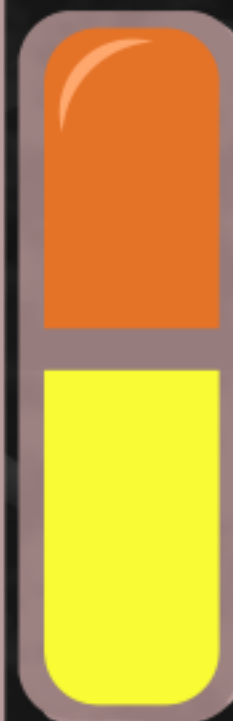




# 1-6 TimeBomb

## Protein Coding Region

Kill Switch. You have 6 hours before your E. coli lyses, so be quick! This is a useful card as it will kill all cells in an environment after a long amount of time.



# 1-3 Desaltifier

## Protein Coding Region

Wouldn't it be great if you could drink sea water? This card may just make that possible. Play this card to remove salt from any environment you are in.



# 1-5 DeToxify

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When this card is played a protein is produced that removes toxic gas. Useful if in a mine, or by a volcano.



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Fuel is vital for power generators to make electricity. With this card your E. coli can produce biofuel.



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This protein coding region produces oxygen. This could be useful when in environments that humans can't breathe in.



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Cells usually don't take too well to cold environments. If you play this card your colony will no longer freeze.



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## Protein Coding Region

This PCR will produce helium. Remember helium has important uses such as cooling MRI scanners, as well as blowing up balloons.



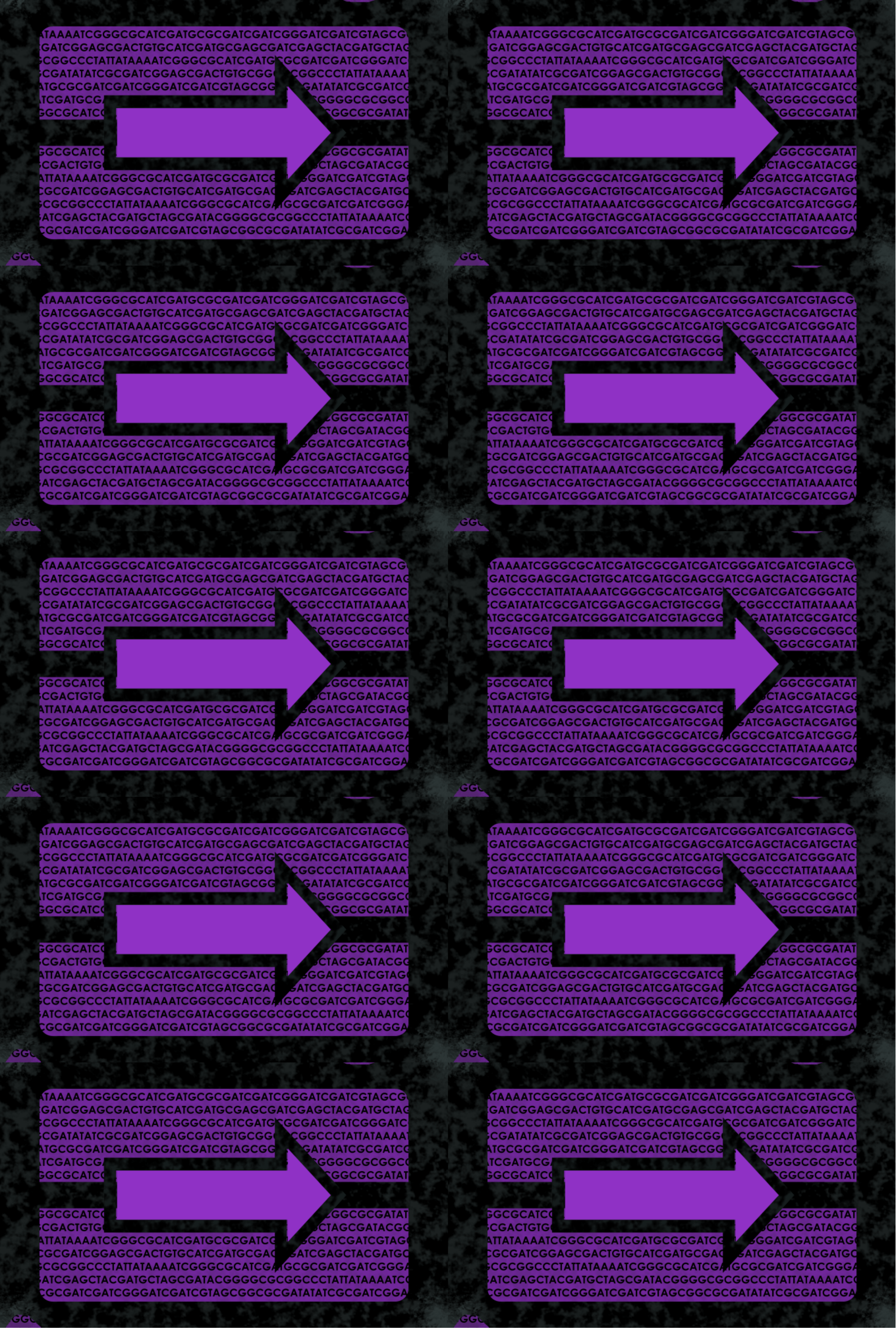
# 1-3 SunCream

## Protein Coding Region

This PCR produces a protein that blocks UV radiation which could otherwise cause skin cancer. Be sure to use if stranded in the sun with no shelter.










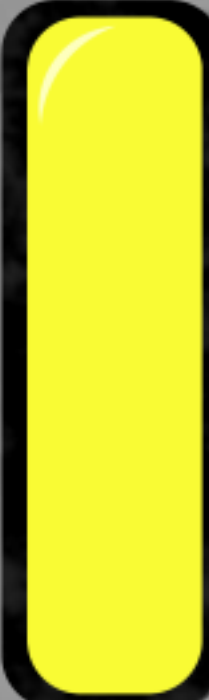
1-5

37oC




Promoter

Body temperature (37 degrees celcius) is usually ideal for cells. This card will allow your cells to promote at roughly this temperature.




1-6

ABG




Promoter

ABG is a promoter that activates your E. coli when in the presence of alpha, beta or gamma radiation.



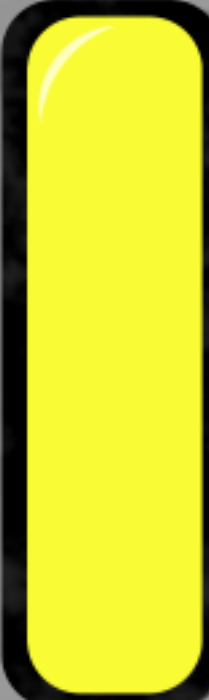
1-3

Alk-aLine




Promoter

When placed in an alkaline (pH>7), this promoter will activate your cell.  
  
Such as martian soil or salt water.




1-3

atm-Pa




Promoter

A useful promoter, activates cells when at 101KPa (normal atmospheric pressure on Earth).



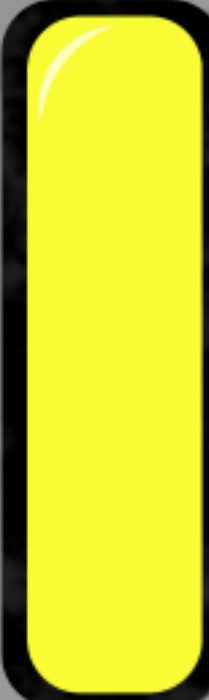
1-4

BaS-1C




Promoter

When in an acidic substance (pH<7), this will cause your E. coli to activate.  
For example, in fizzy drinks or acid rain.




1-3

C01-D




Promoter

It's cold outside, possibly freezing. If you want to use synbio you better hope your plasmids have this promoter in them!




1-4

Cu-LatR




Promoter

Copper (Cu) reserves are found in rock. If your plasmid has this card, your cells will be expressed when in the presence of copper.




1-4

Fe-R




Promoter

Iron (Fe) is a metal, usually mined from rock. If you have iron deposits near you, it would be a good idea to use this card, as your cells will be promoted.




1-3

FreezeR




Promoter

Cells with this promoter are active when in cold temperatures.  
Roughly below freezing temperature.




1-2

Haw-T

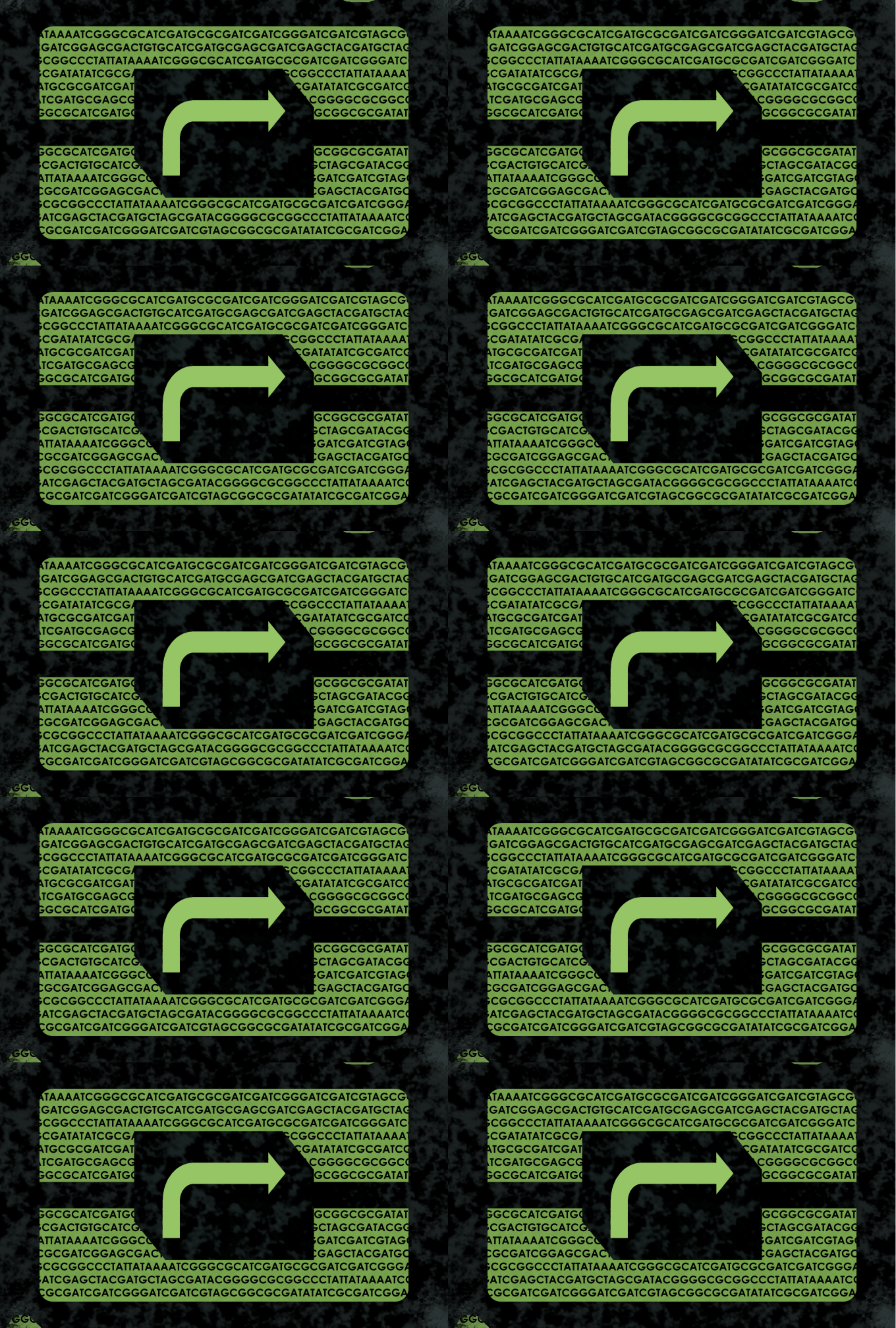


Promoter

It's boiling, you could be on a desert island, or even by a volcano. But at least your cells will work, providing you play this card.











1-2

N0-C




Promoter

This promoter works when no light is present, meaning that your cell colonies can activate in the darkest of environments, such as caves or mines.




1-4

N0-Pa




Promoter

In some scenarios the pressure will be very low. Use this promoter to activate cells in such environments. Useful on Mars or on mountains.




1-4

NaCl




Promoter

Some environments are rich in salt (NaCl). If used in the right scenario this card would allow cells to over-express when in the presence of NaCl.




1-4

Ni-YC




Promoter

If your scenario has large deposits of nickel, use this card. This will allow your cell to over-express when in the presence of such an element.




1-4

POP




Promoter

High pressure environments can be anything from a deep under water trench to a mine. Thanks to this promoter you can use synbio in these scenarios.



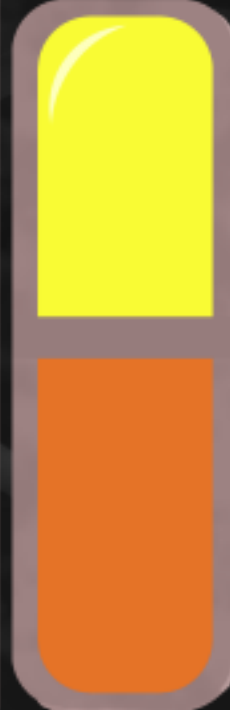
1-6

Salt-EE




Promoter

Lots of environments are rich in salt, if you are in such a place this card might be for you. This promoter will activate your E. coli when NaCl is present.




1-3

ScorchD




Promoter

When it's scorching outside (over 30 degrees), any plasmid with this promoter will activate.




1-2

ShineR




Promoter

When in the glaring sun, this promoter will cause your cells to express. Useful if your working in a sunny place, such as a desert island.




1-3

T3p-1D



Promoter

Perfect for cell colonies operating at room temperatures, of apporximately 25 degrees celcius. Useful indoors, or warm climates.



1-6

ToxR

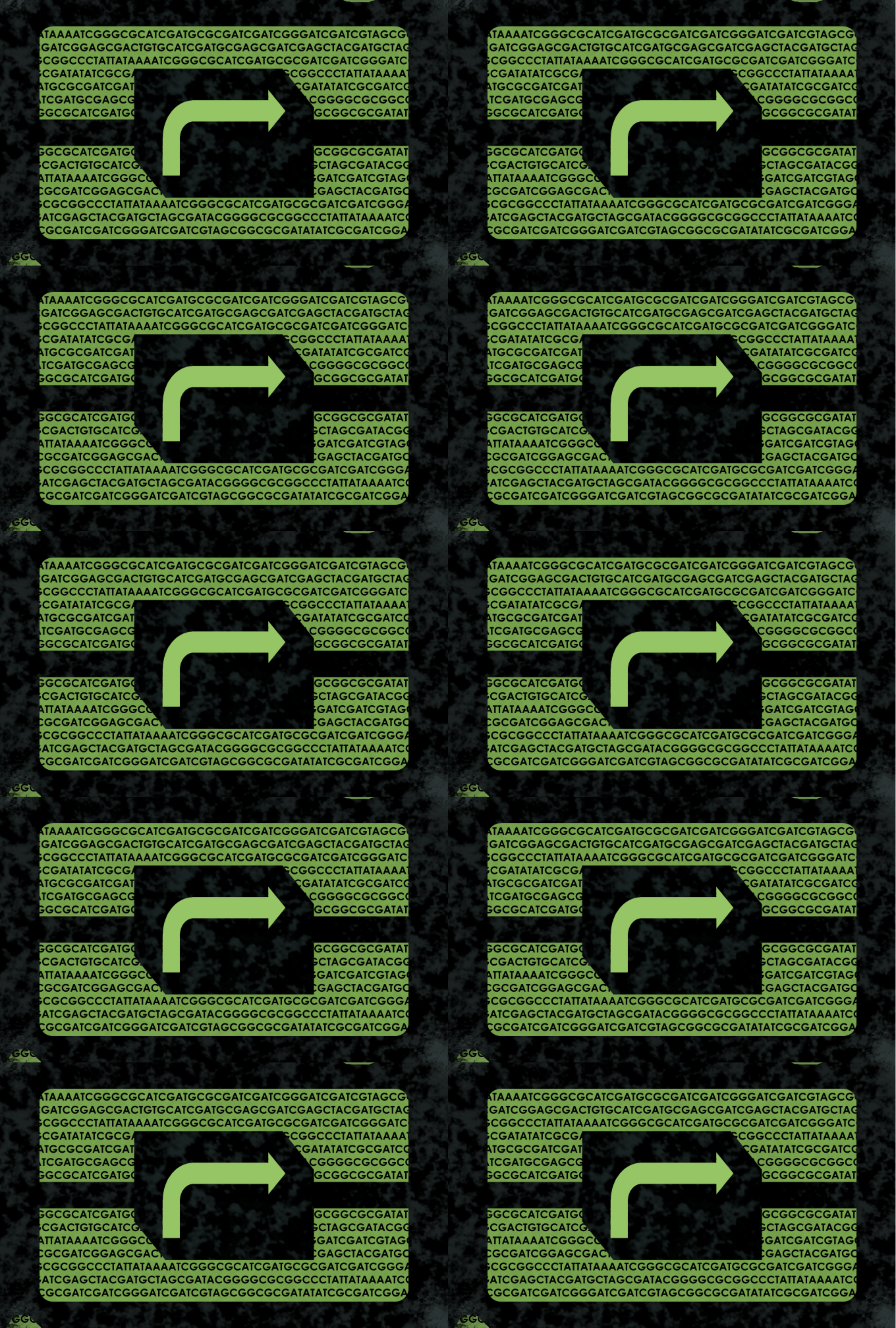


Promoter

When this card is played your cells will activate when placed in an environment with toxic gas. Useful if working in a mine or by a volcano.



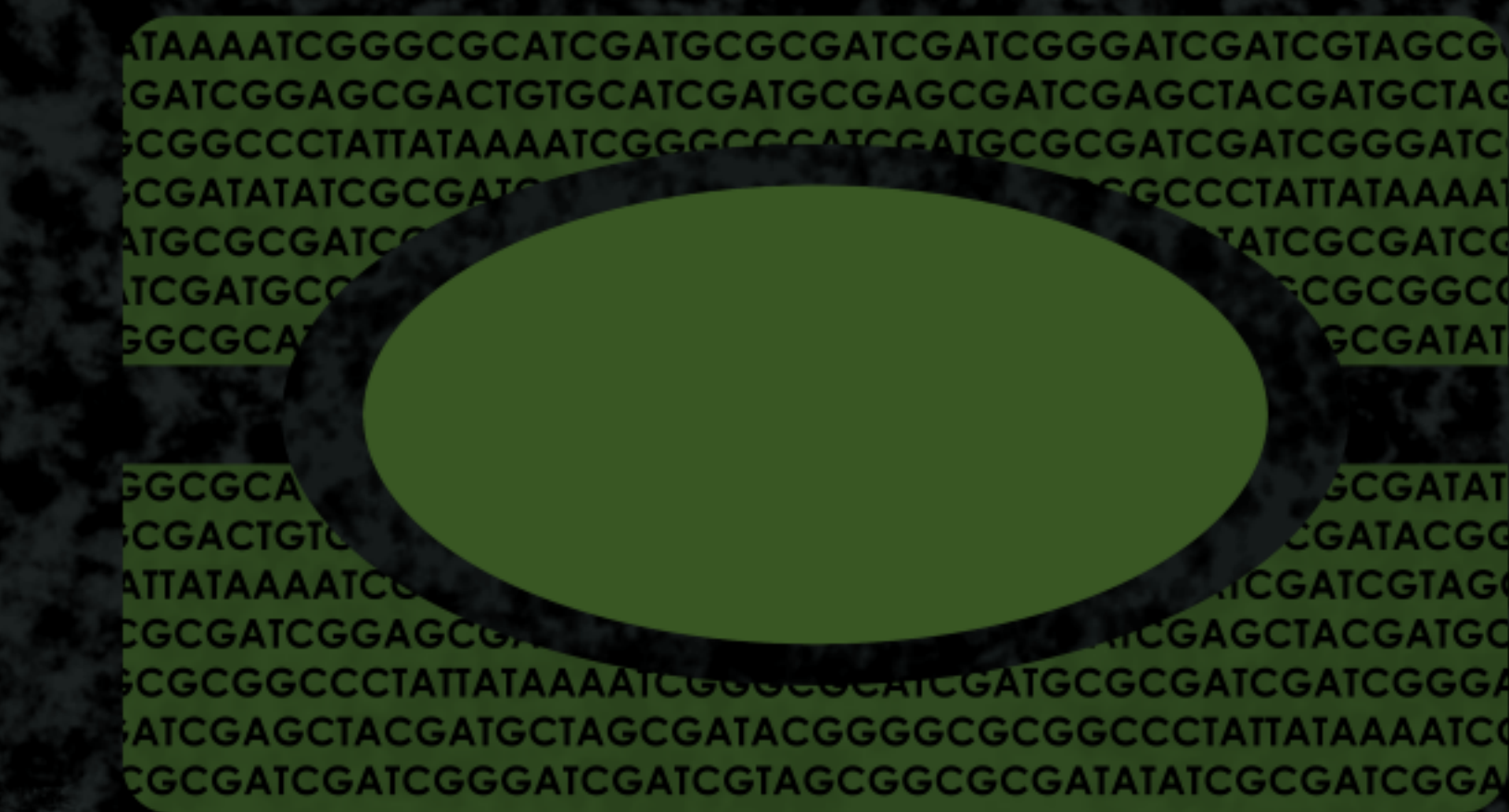
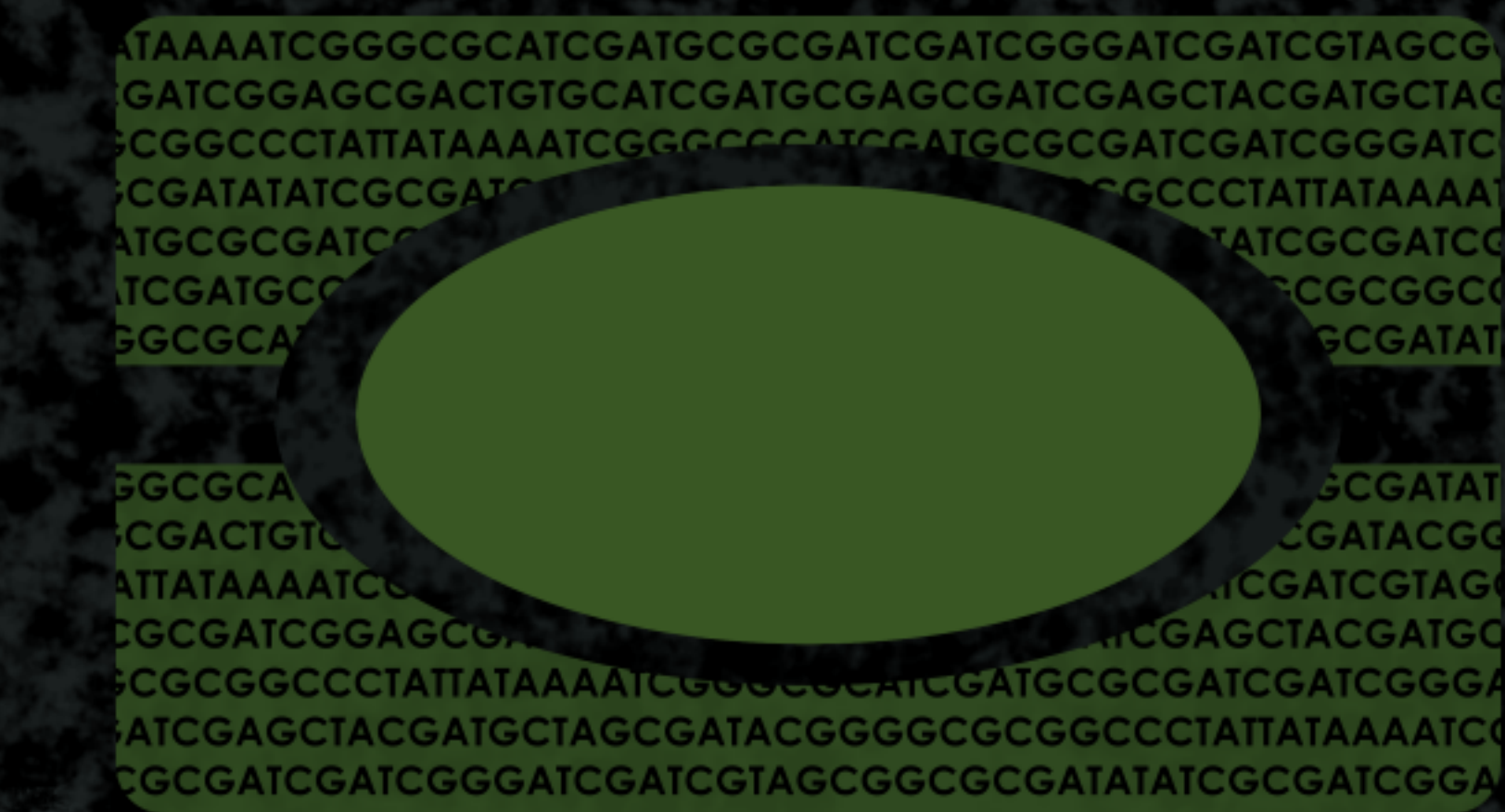
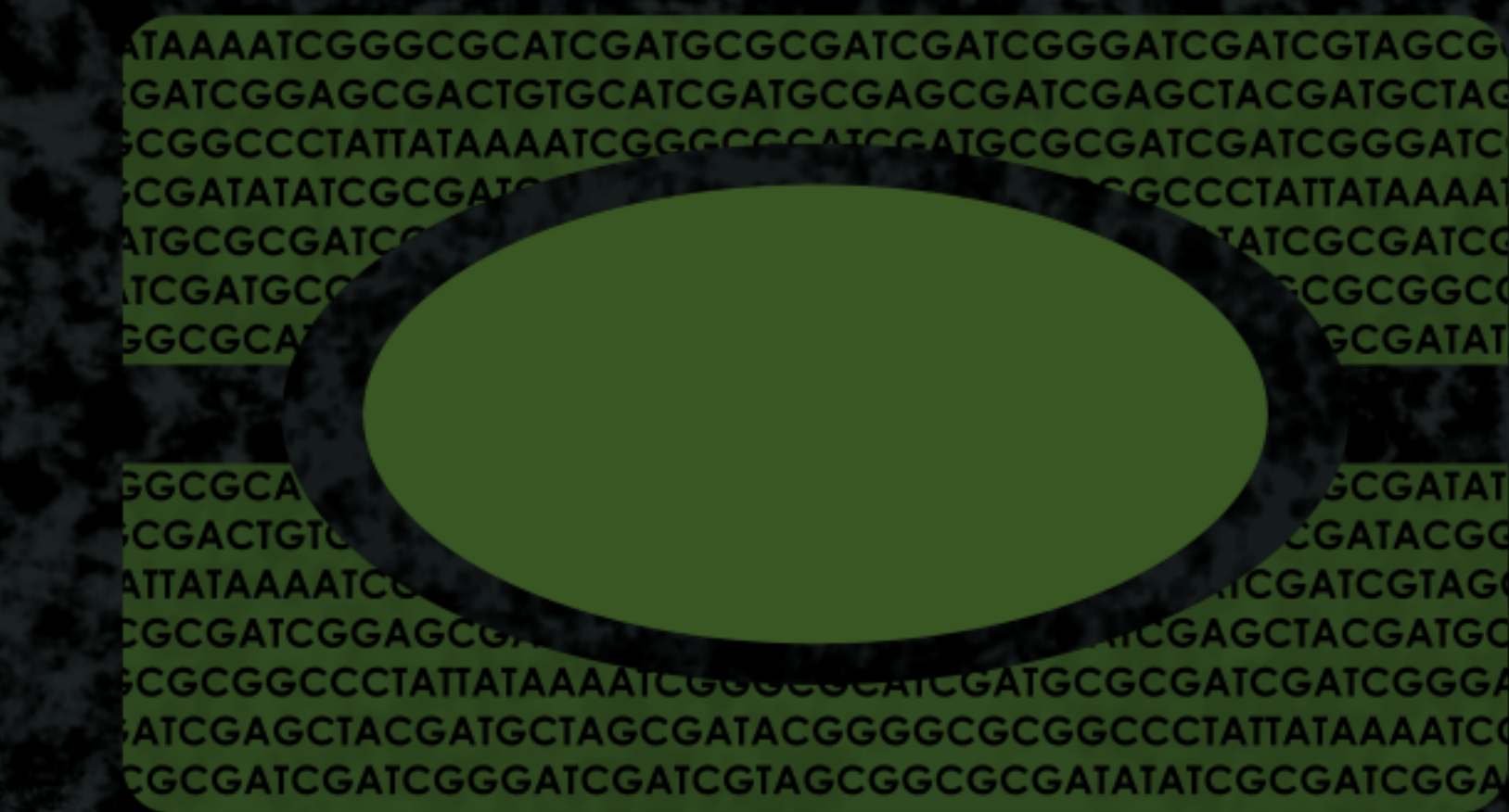
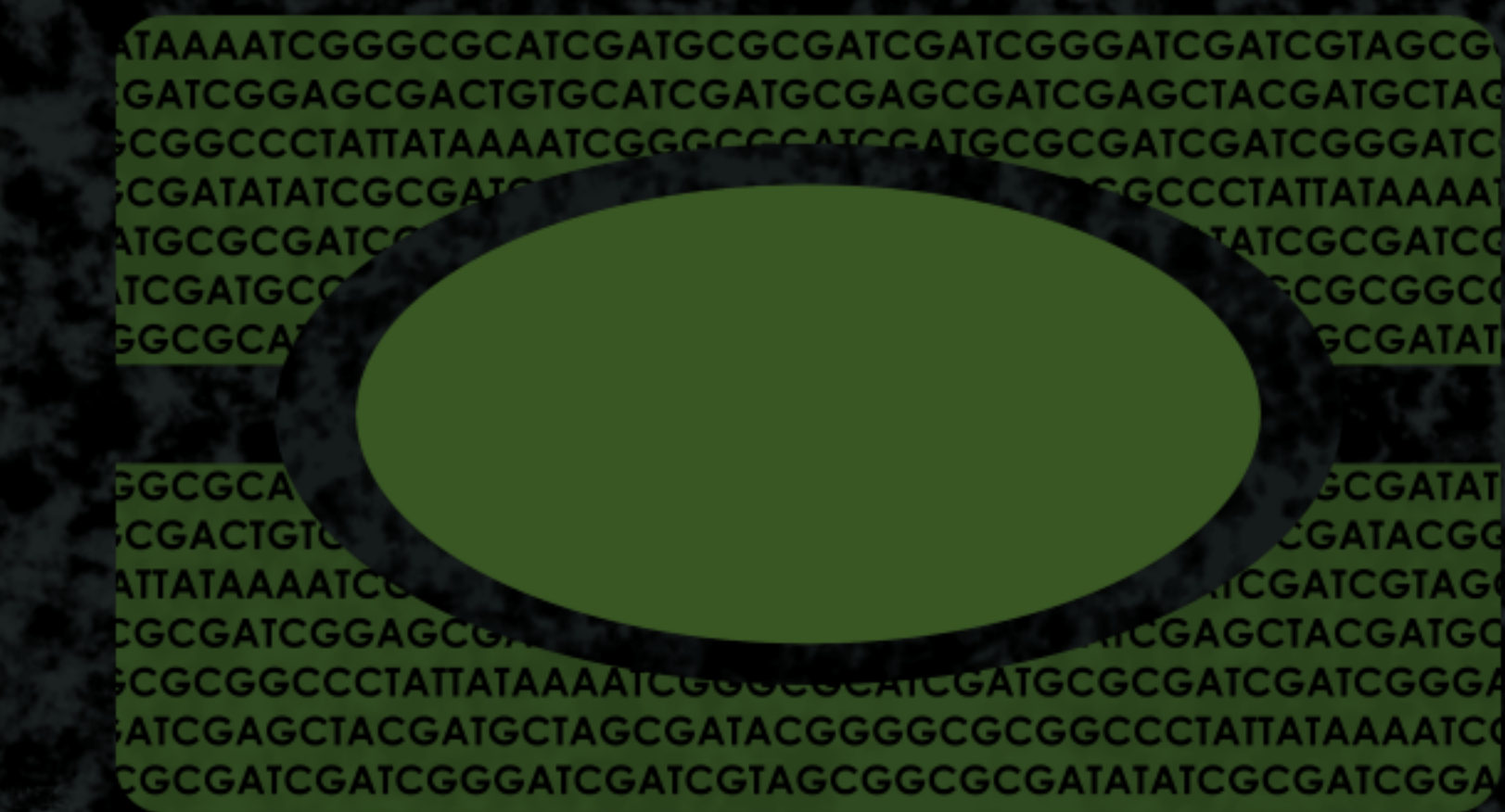
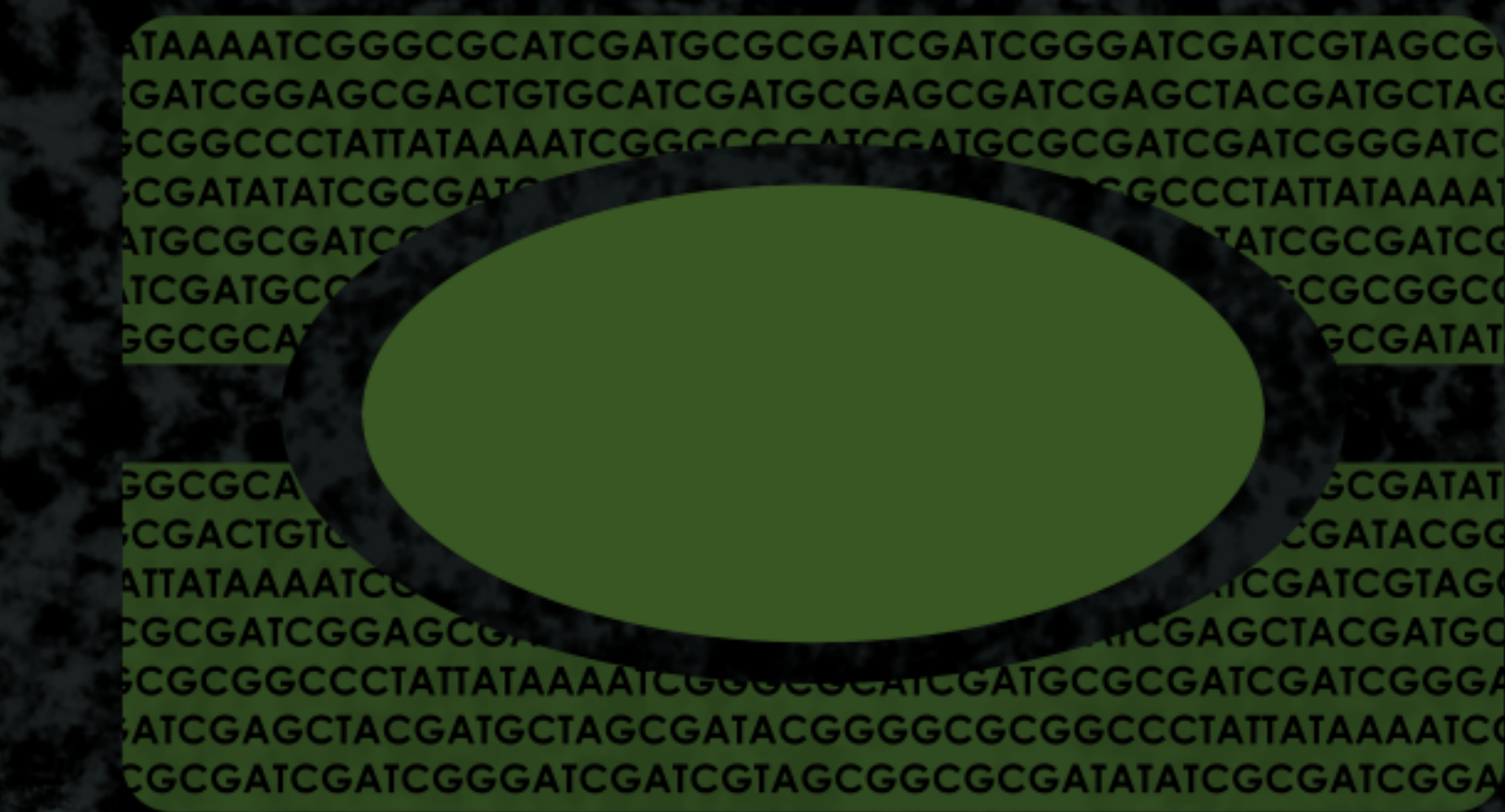
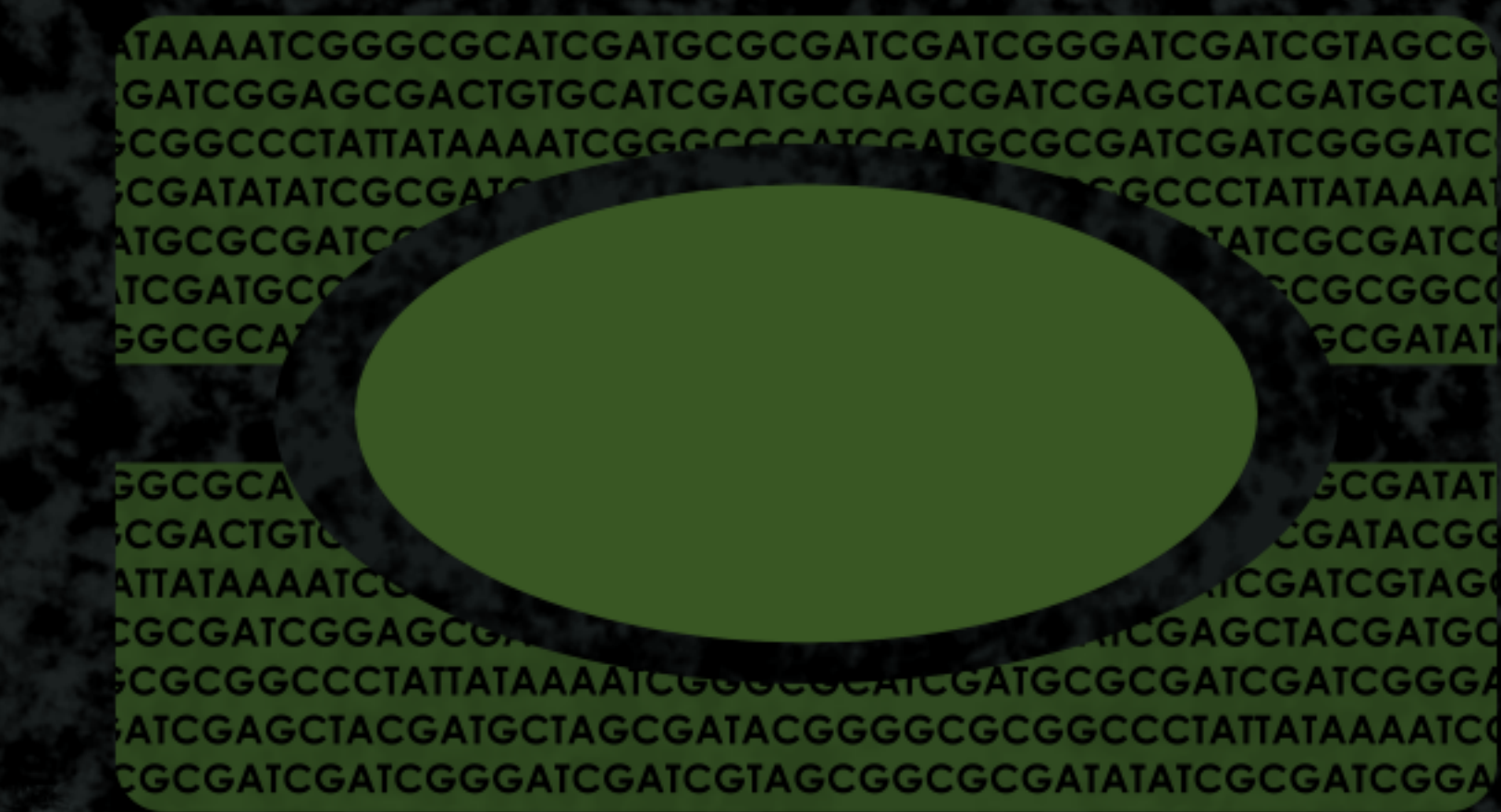
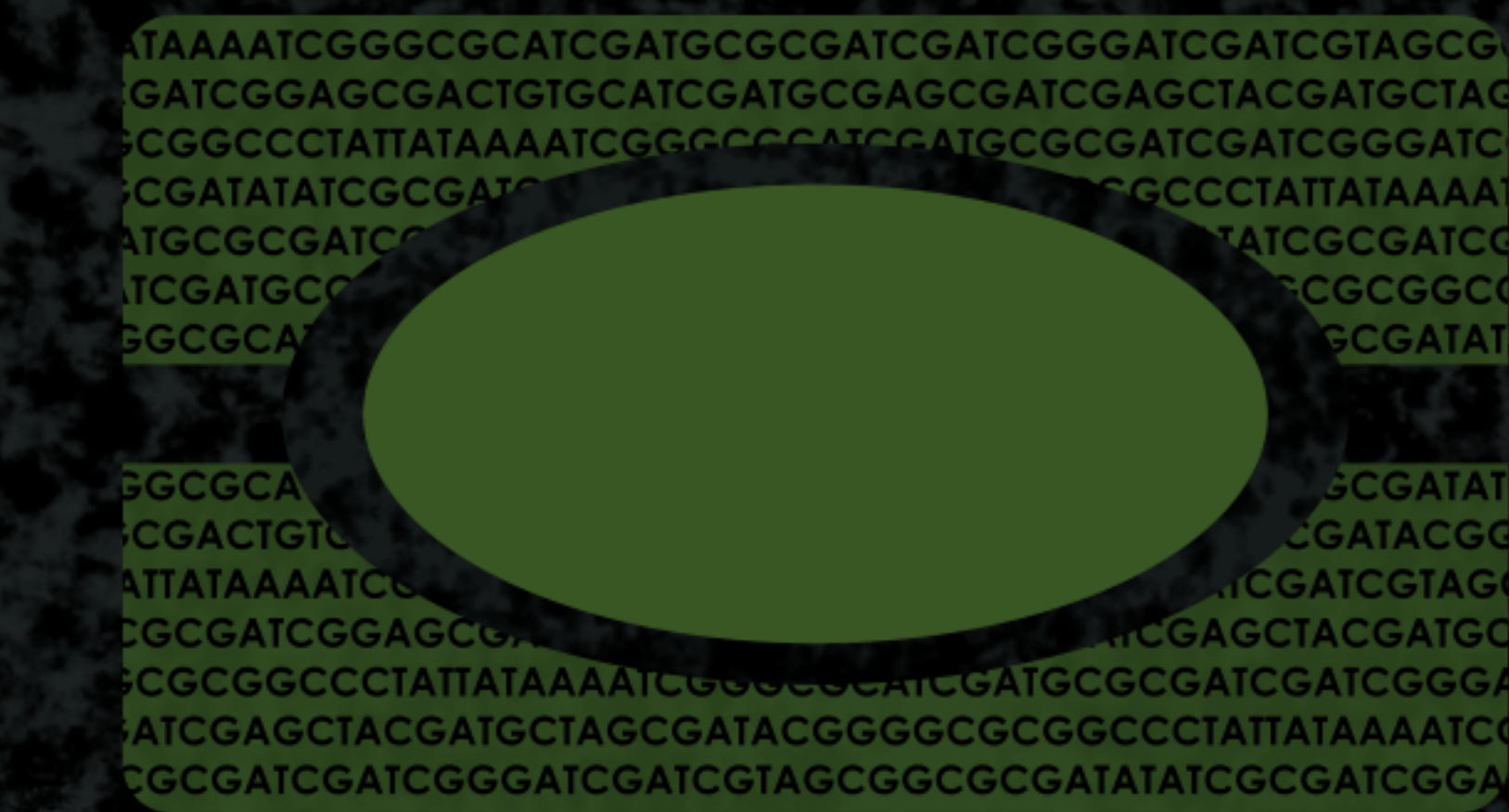
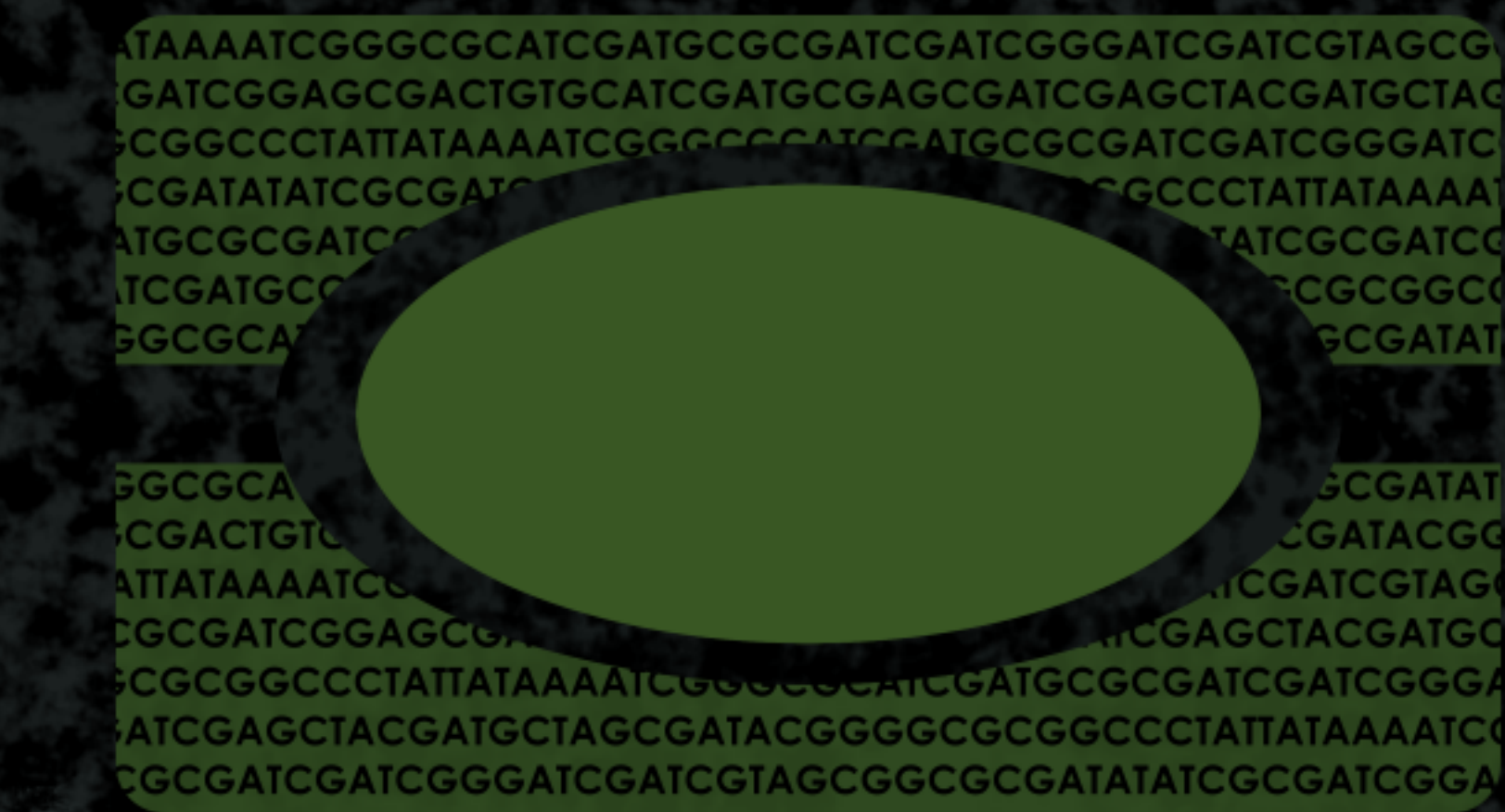
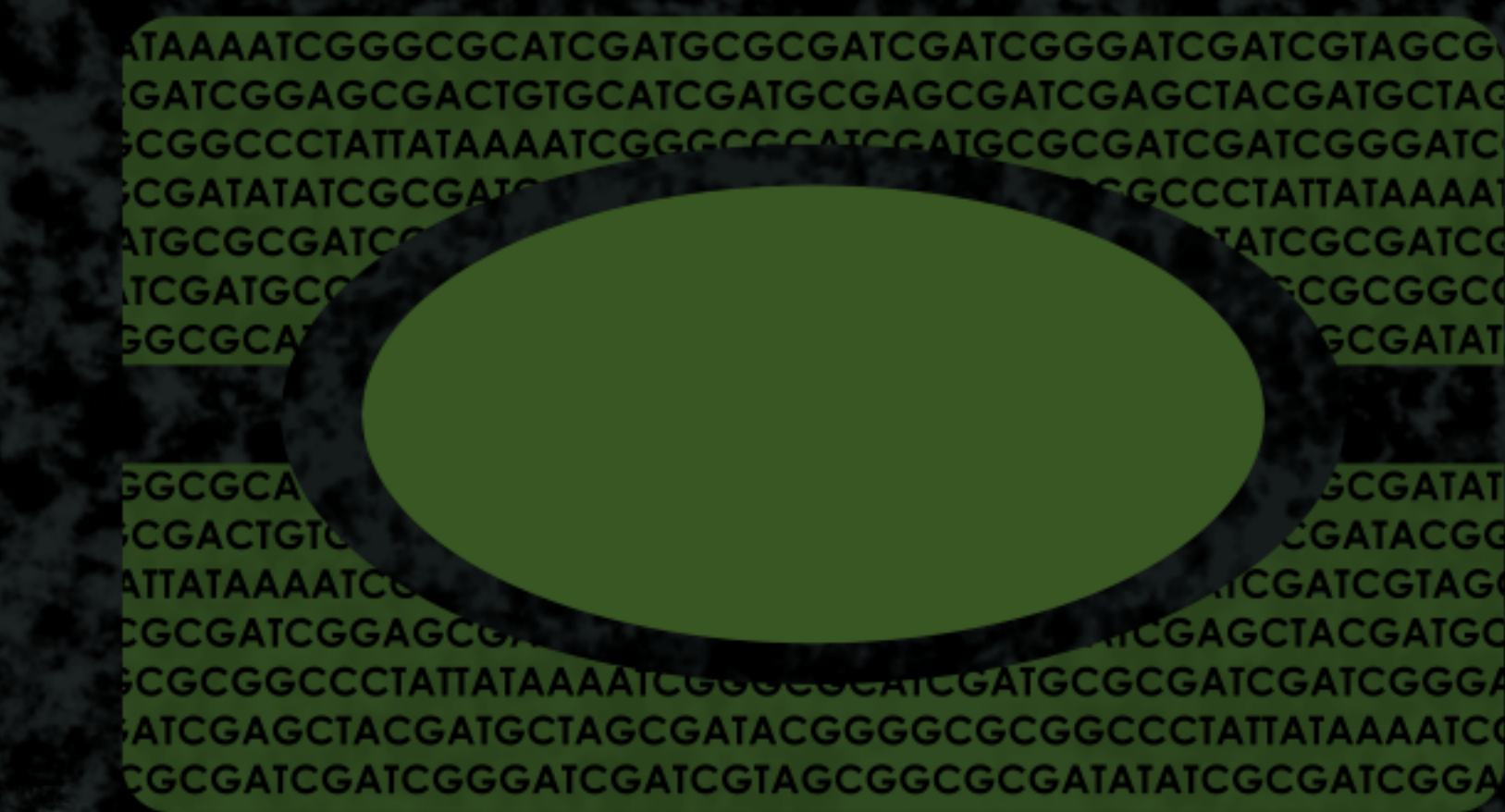
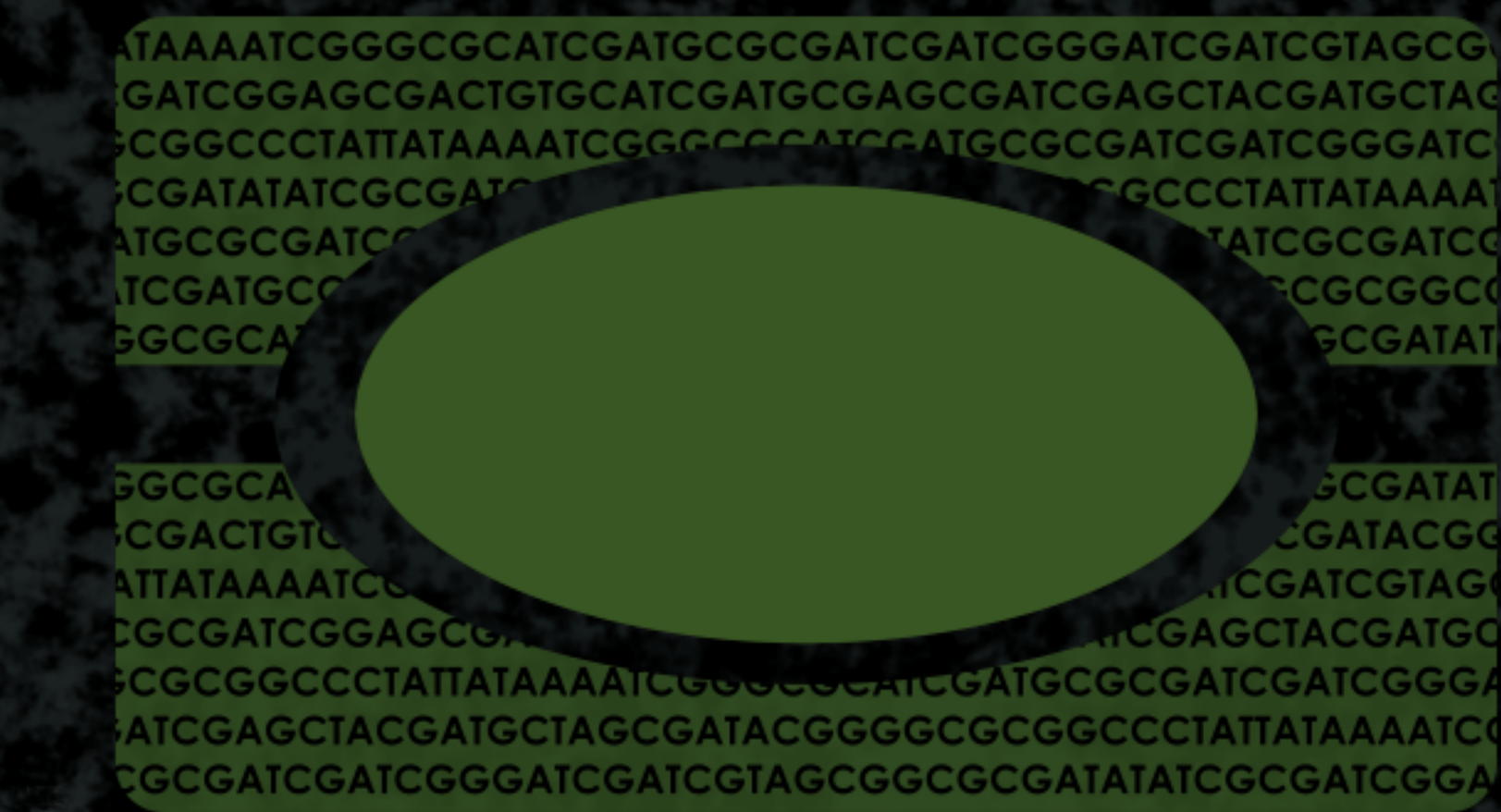














?

Ribosome Binding Site

You score 1 point for every in your genome including the one on this card

?

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?

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Ribosome Binding Site

You score 2 point for every in your genome including the one on this card

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Ribosome Binding Site

You score 2 point for every in your genome including the one on this card

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Ribosome Binding Site

You score 1 point for every in your genome including the one on this card

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Ribosome Binding Site

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Ribosome Binding Site

You score 1 point for every in your genome including the one on this card

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Ribosome Binding Site

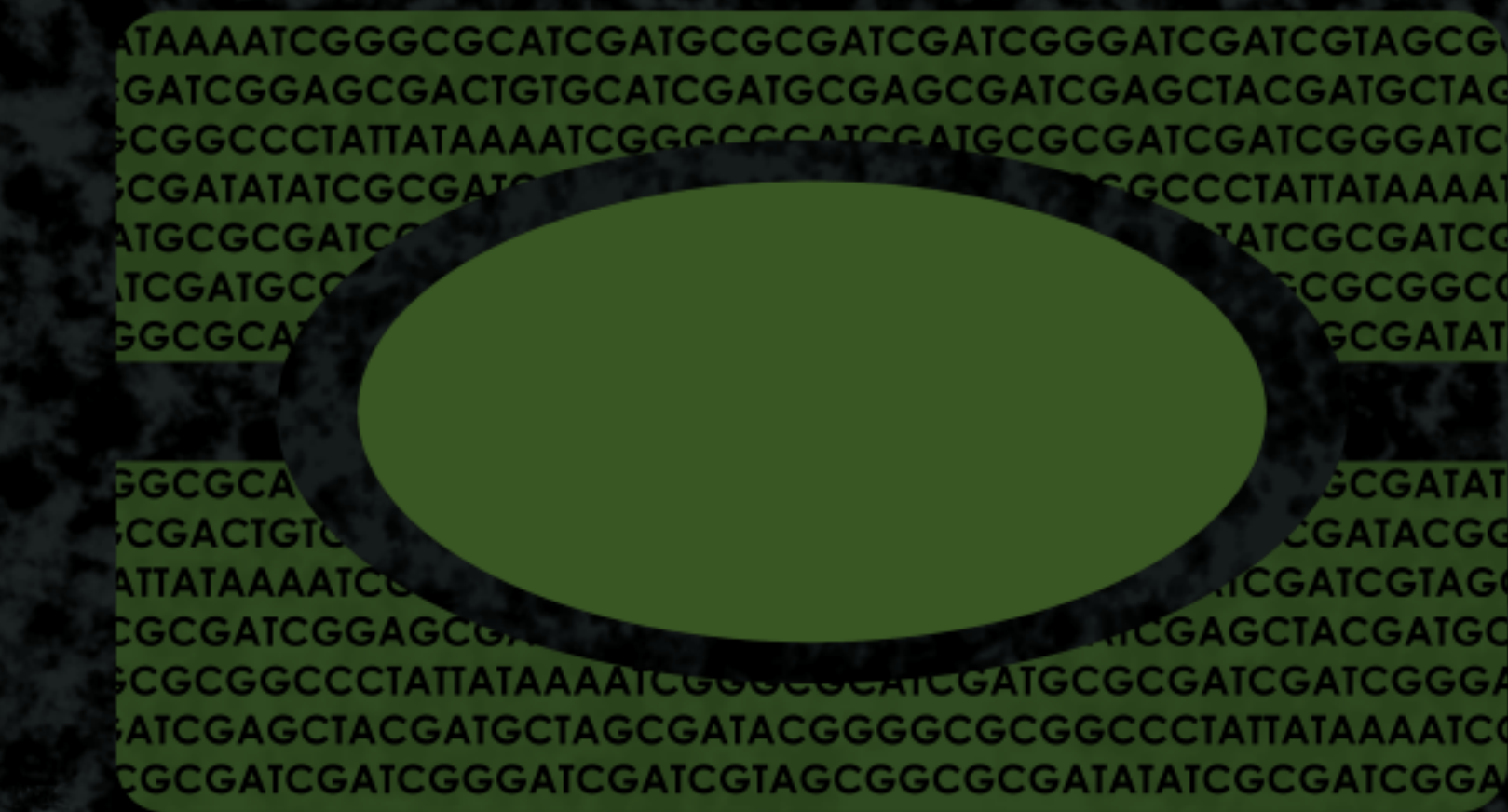
You score 2 point for every in your genome including the one on this card

?

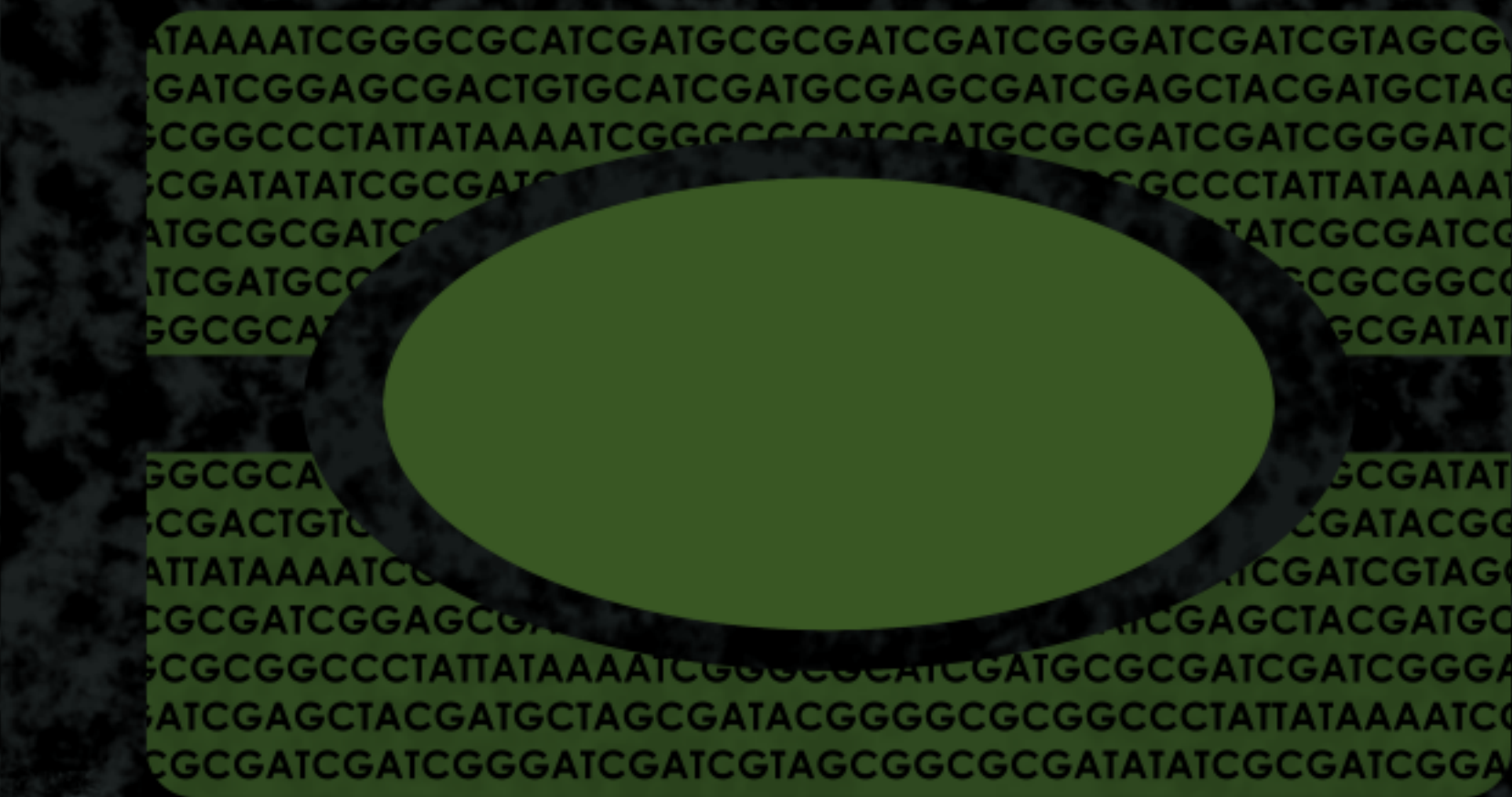
Ribosome Binding Site

You score 2 point for every in your genome including the one on this card

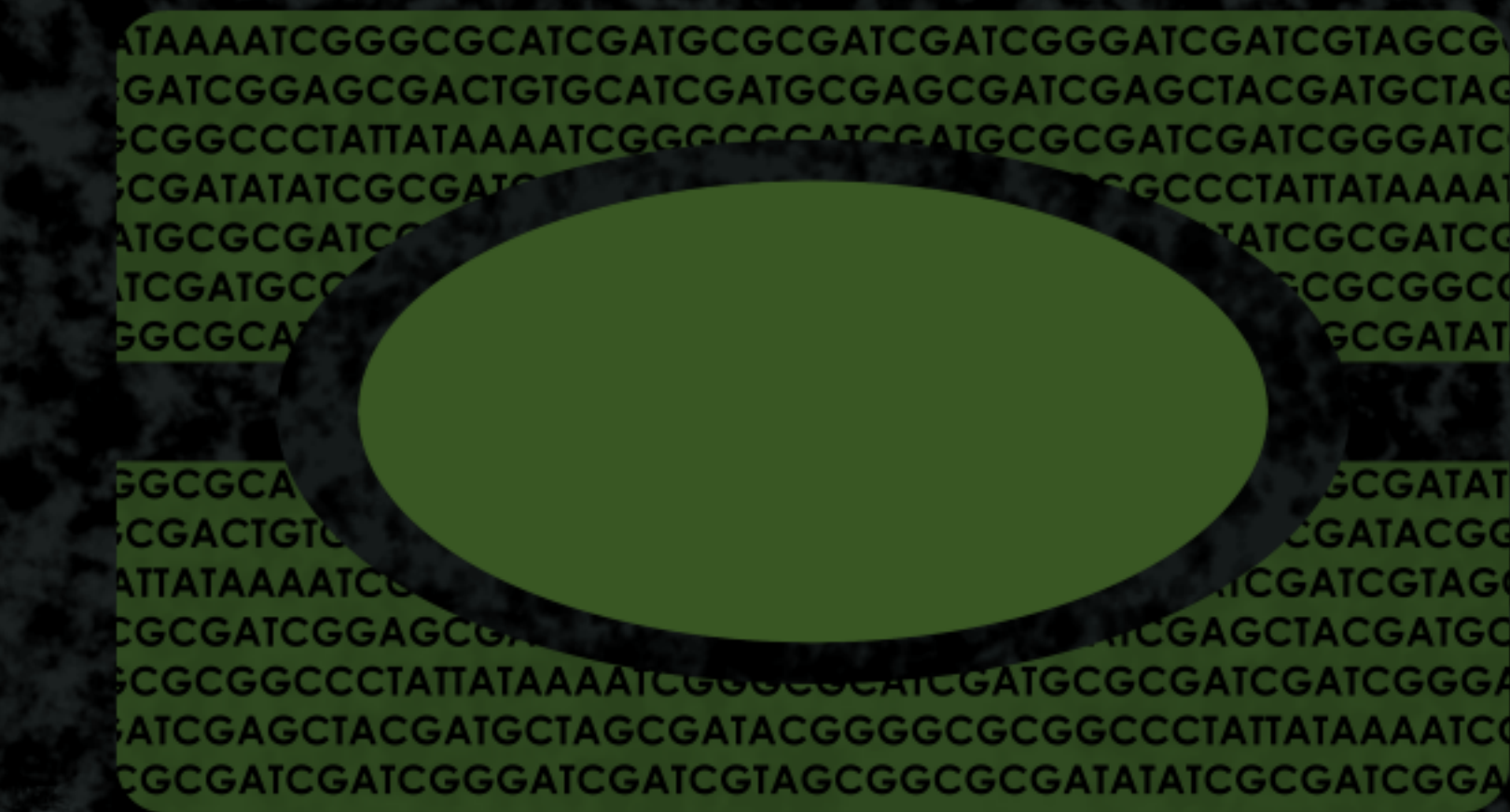




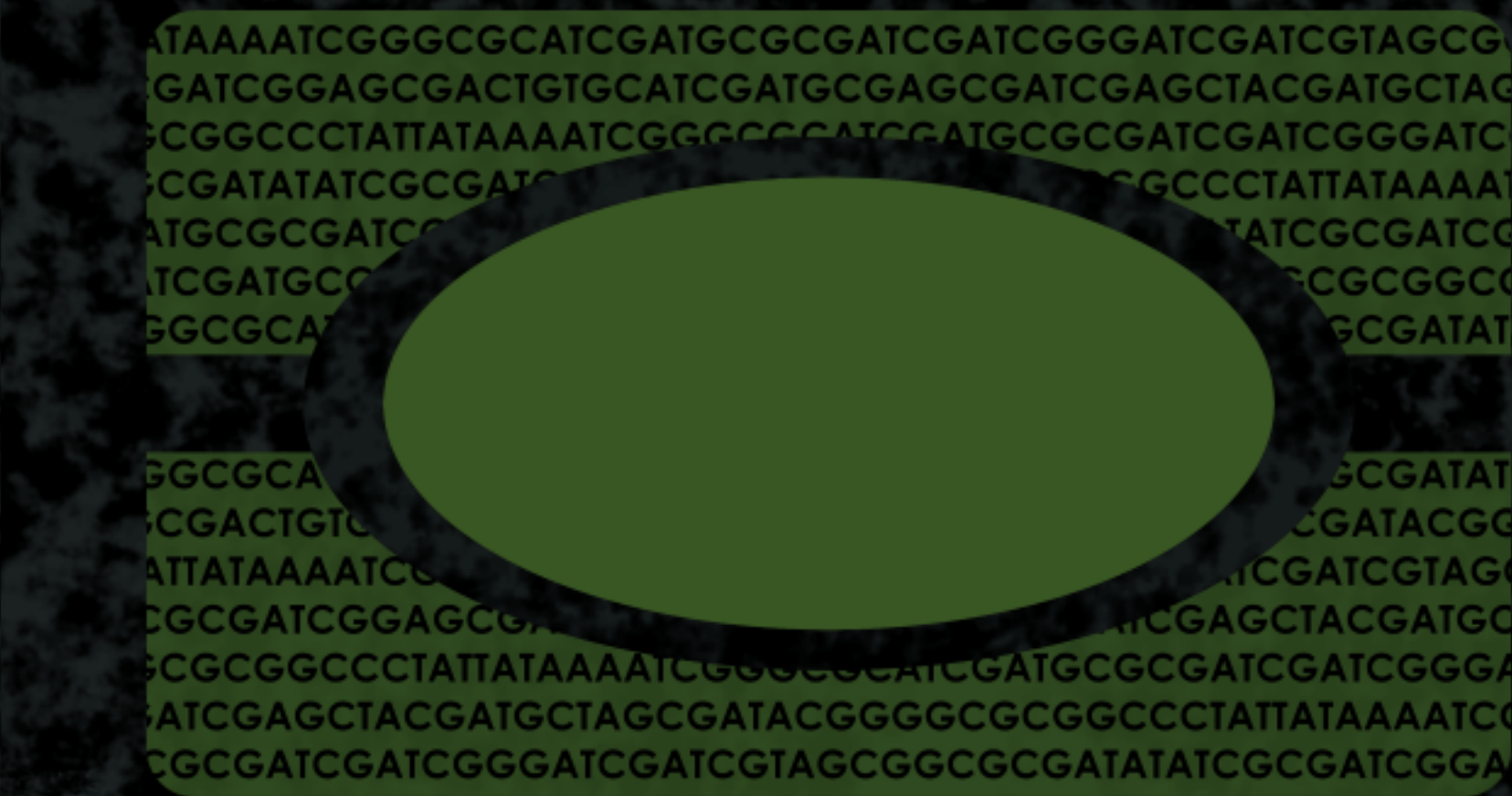
GGC



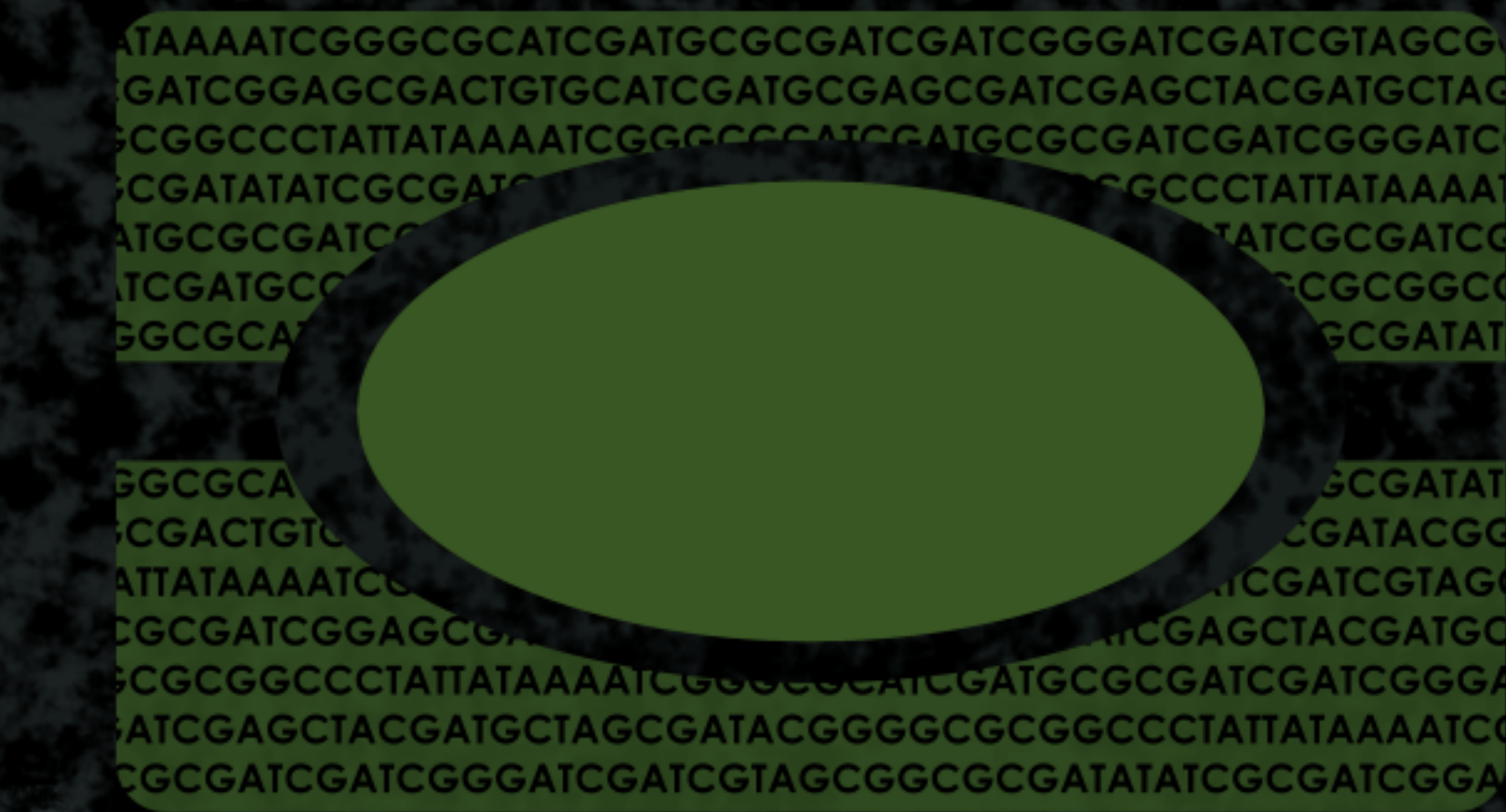
GGC



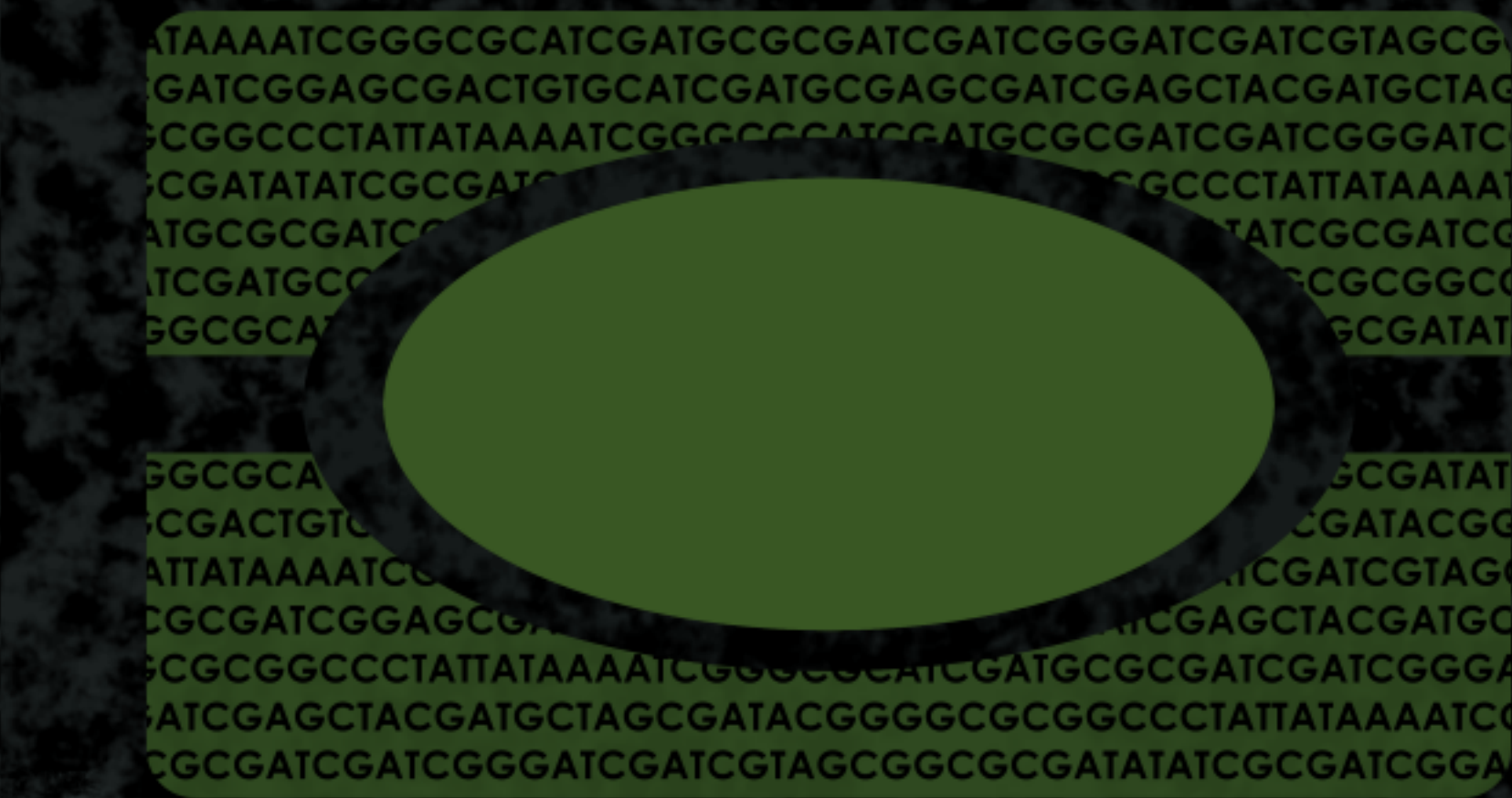
GGC



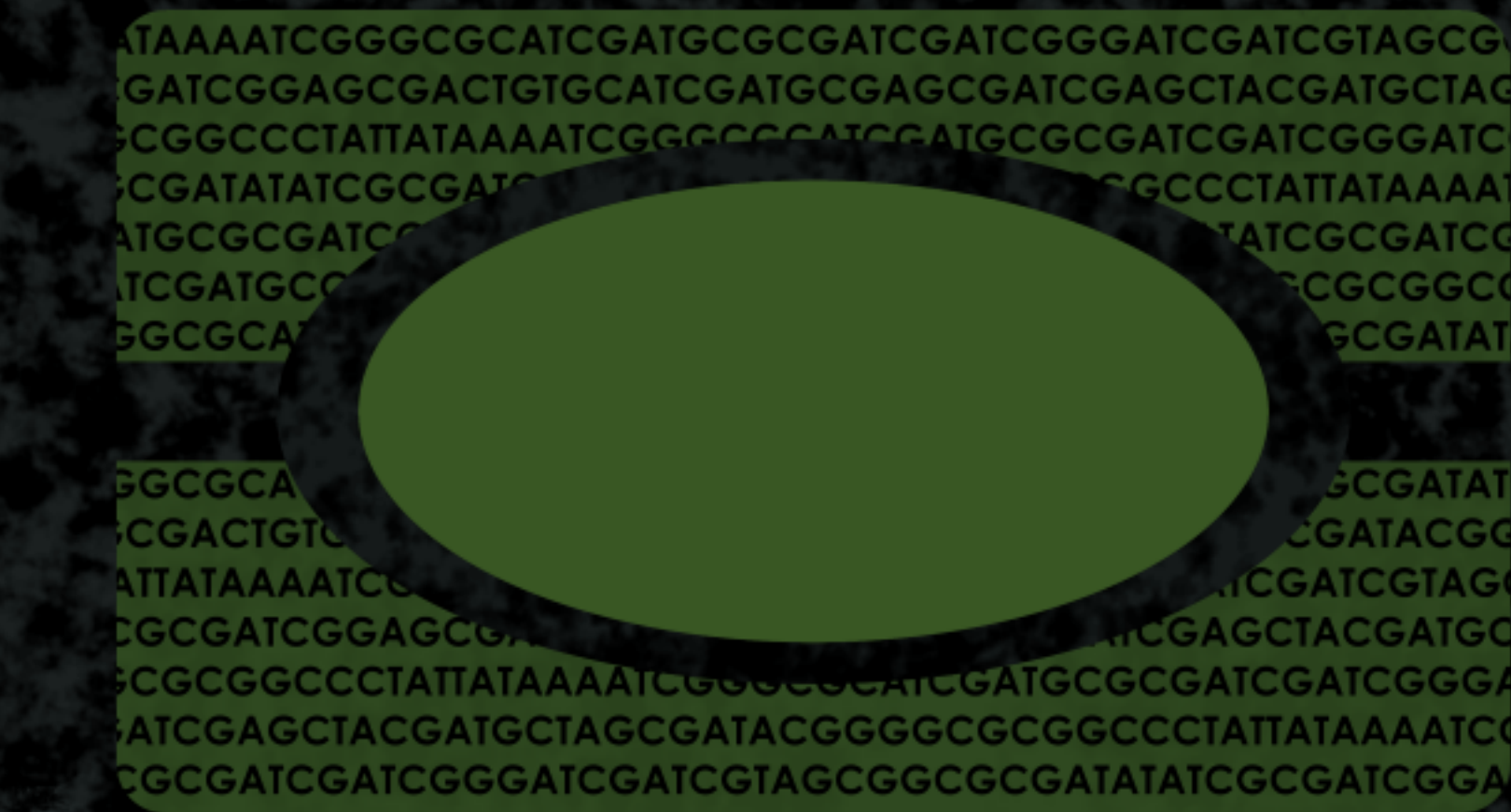
GGC



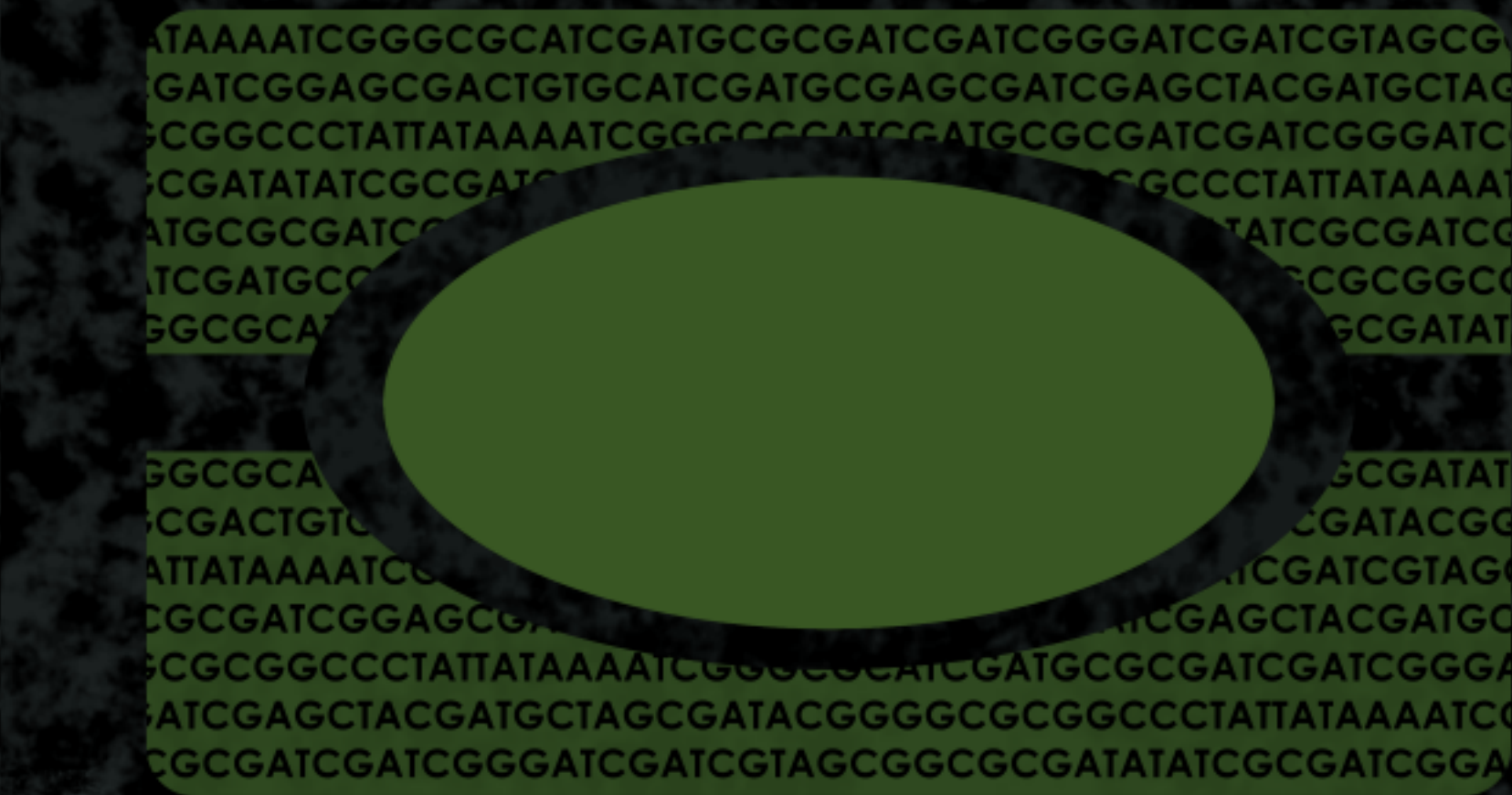
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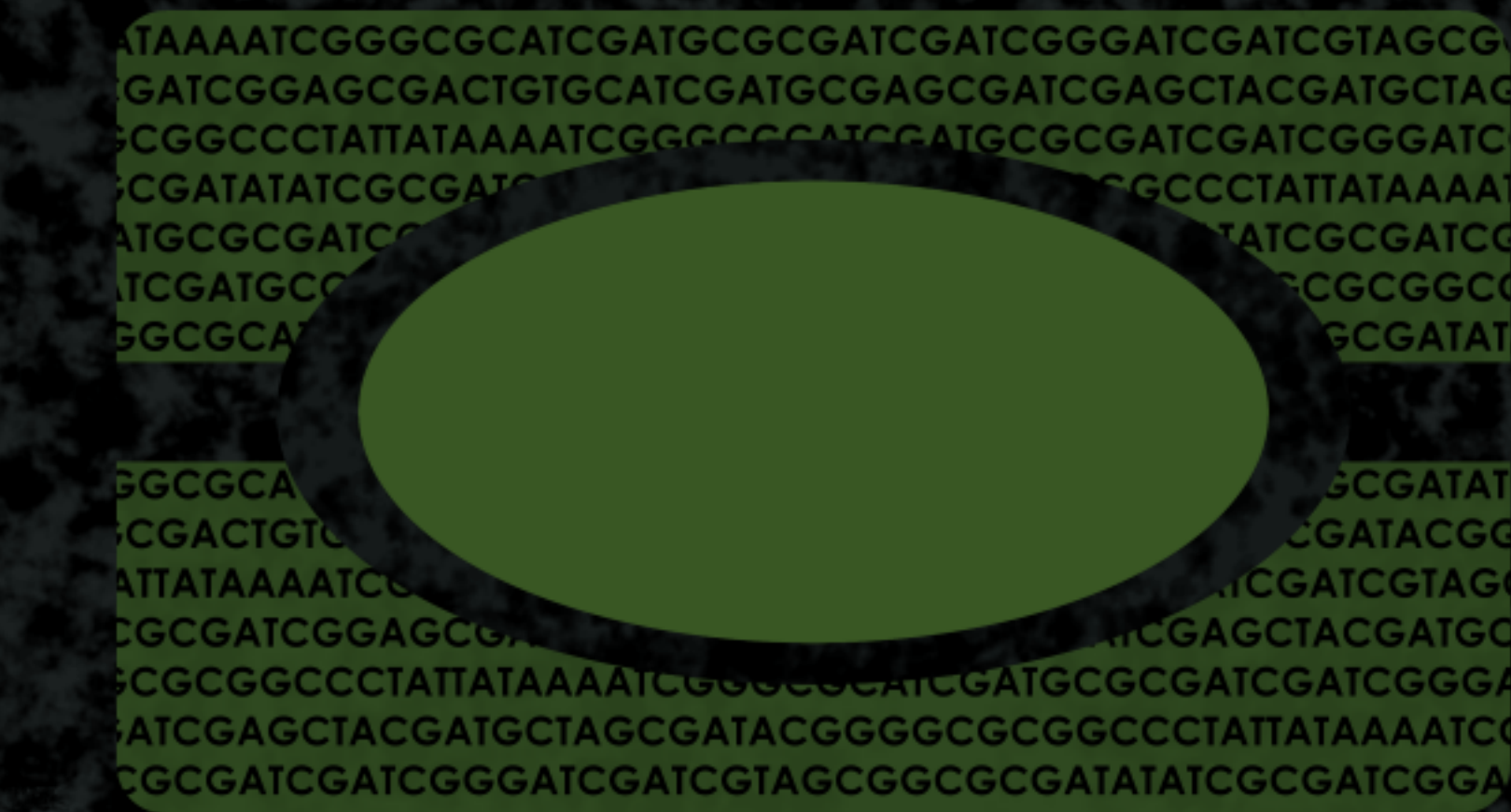
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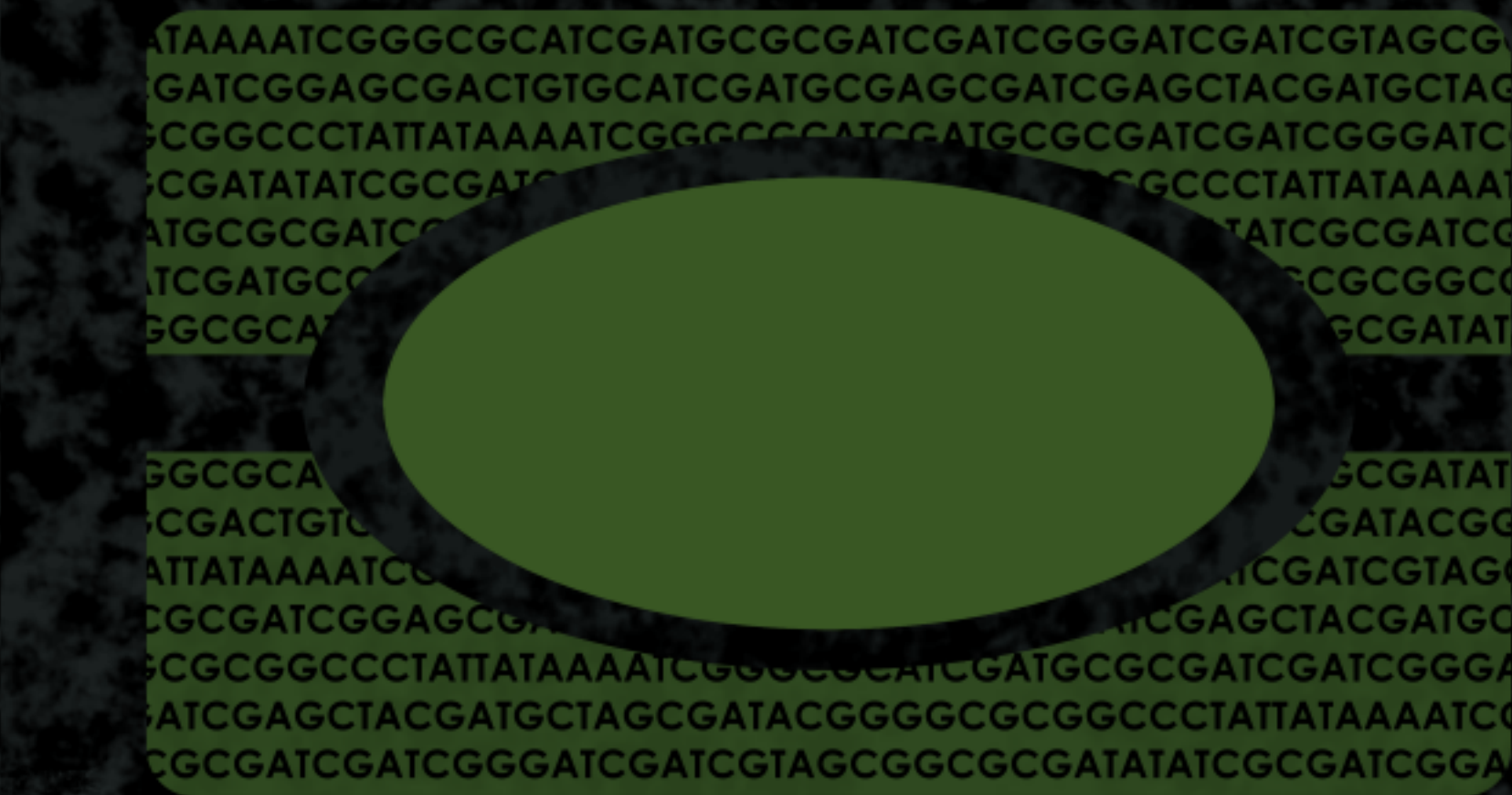
GGC



GGC



GGC




GGC



2


Terminator

Roll a  or higher, otherwise  
your genome mutates and you  
score no points this round



2


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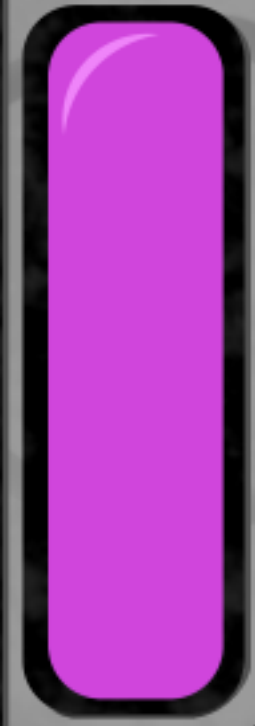
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3


Terminator

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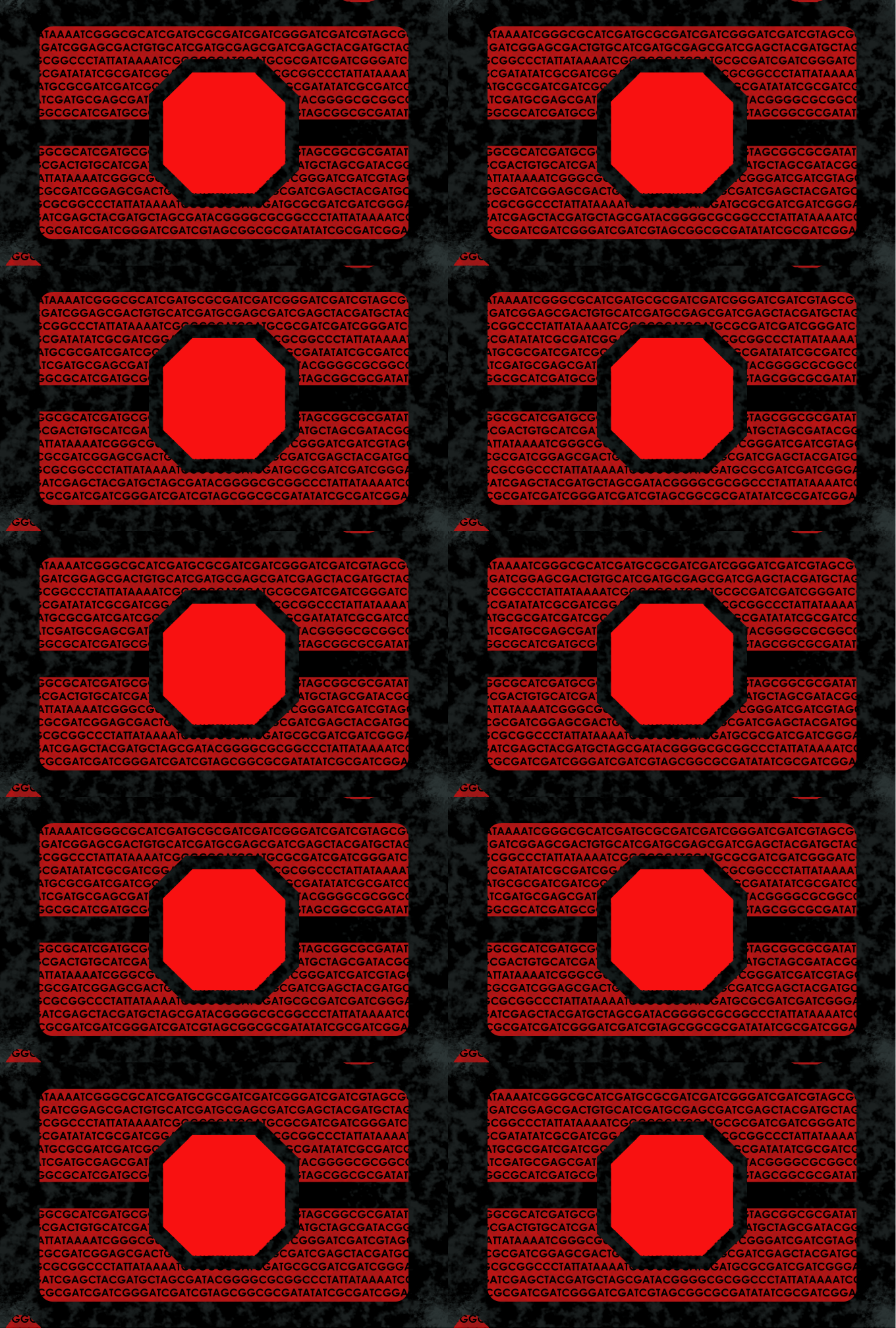
3

Terminator

Roll a  or higher, otherwise  
your genome mutates and you  
score no points this round










6


Terminator

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score no points this round



6


Terminator

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3


Terminator

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3


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4


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5


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